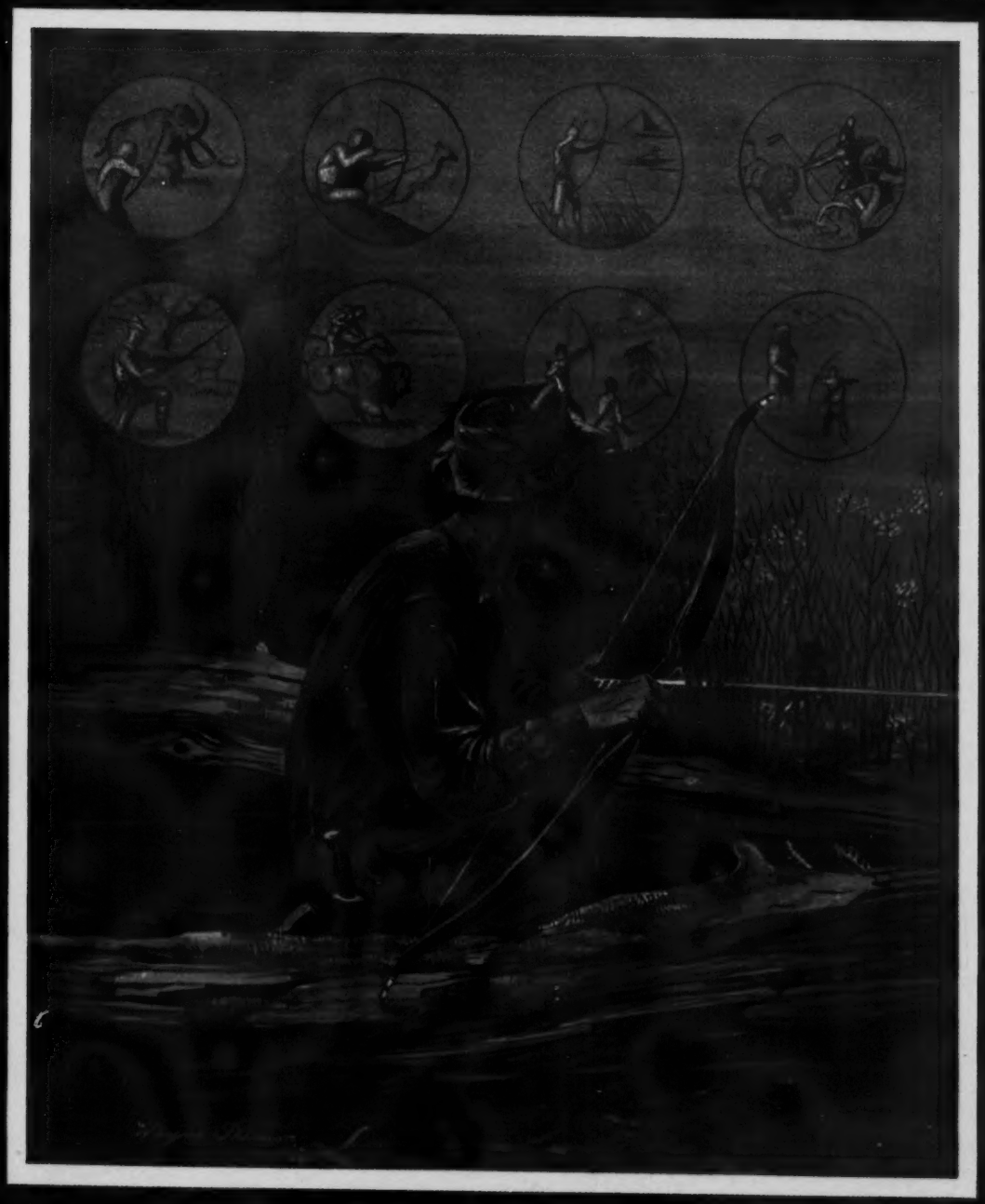
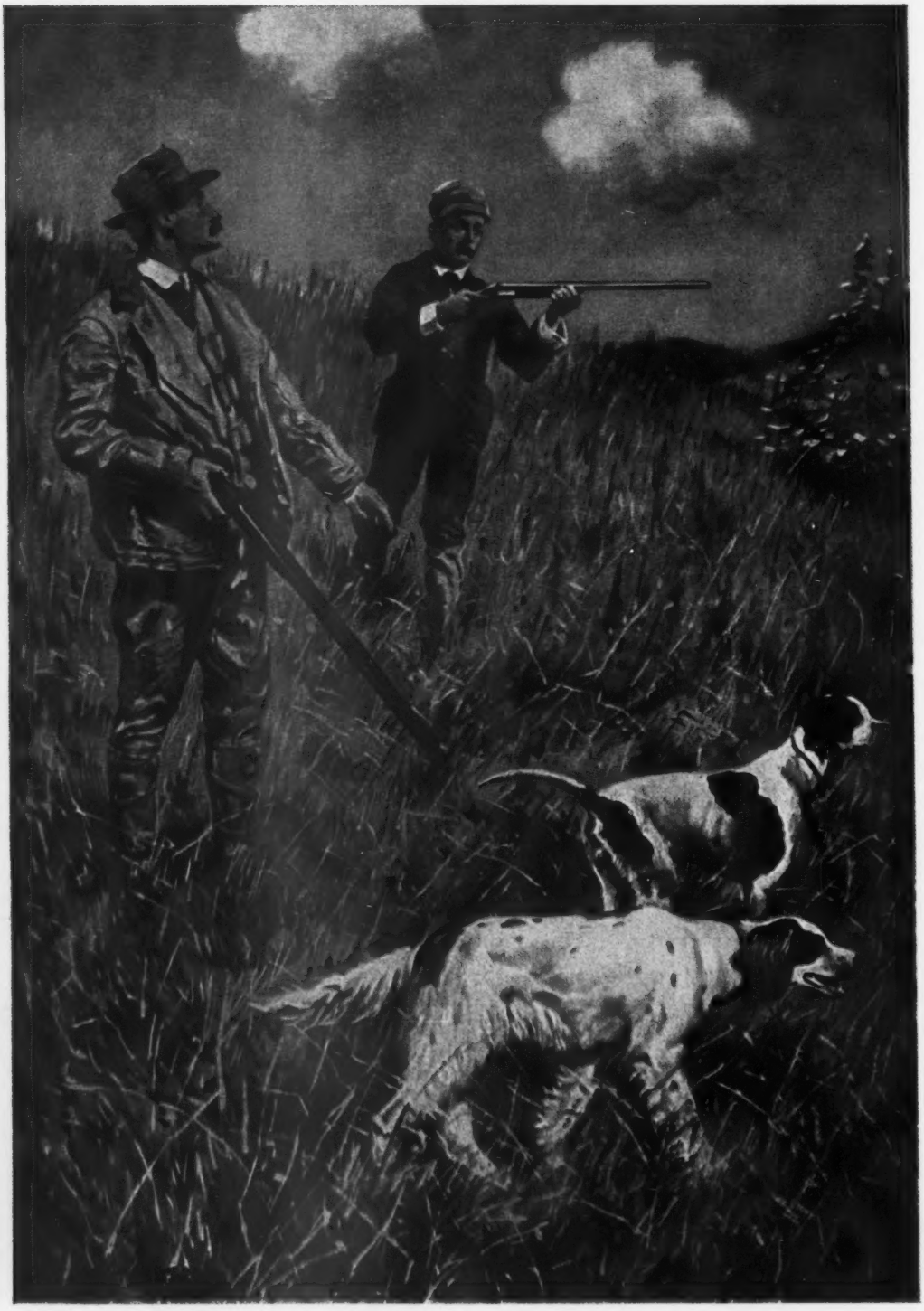
The New York State
Conservationist
October-November 1959

State of New York Conservation Department





His first day afield

Hunting dogs and such

Autumn is the time of year for pumpkin pies and football games; for burning leaves and gathering hickory nuts. Autumn is sweet cider time and the season for witches and black cats. Now the skies are the bluest, the clouds the swiftest, the warmth of the sun most appreciated. Along stone walls, wild grapes glow and apples, red and yellow, lie on old orchard ground—the season of harvest is at hand.

For the sportsman, too, this is a time of harvest, and the game of woods and field, of marsh and rushy river is no less a crop of the land. Moreover, just as with grains, fruits and crops of the field, wildlife production must be harvested if it is to benefit man.

It's a happy circumstance, though, in the case of wildlife, that harvesting the crop is not a chore. On the contrary, it is a delight and privilege looked forward to each Fall by millions of sportsmen all across this country where public hunting is cherished as an American tradition.

Nor are we alone in our anticipation of the hunt. Our hunting dogs, although they do less talking, even lying, about their feats afield, are equally expressive in their recognition that this is the season they've been waiting for all year.

So, in this issue of THE CONSERVATIONIST we are featuring hunting dogs; acknowledging in small part and as sportsmen our debt to these wonderful companions of the field. We regret that limitations of centerspread space necessitated the omission of many worthy breeds of good working dogs. We hope the canine clan will forgive us. But we have featured the most popular in the field today and here, on the second cover, we look back with artist, Hy Watson, to a hunting scene of fifty years ago—just to prove that good dogs were as essential a part of the hunt then as now.

No one knows just how old this association of man and dog really is, nor just how they came to be such close companions. But no one questions the mutual benefits of that association, and all of us hope it can be enjoyed forever. If, however, there is to be opportunity in the future for a man and his son to take their dogs afield during frost-tinted Autumn days, there must be sincere and dedicated effort by us all to preserve public hunting opportunity in this country.—Editor

The New York State

Conservationist

October-November, 1959

Contents

	VOLUME 14	NUMBER 2
FIRST COVER		*H. Wayne Trimm*
SECOND COVER		*Hy S. Watson*
ADIRONDACK NORTHWAY	2	*J. Burch McMorran*
THE NEW LOOK AT COLD SPRING HARBOR	4	*C. E. Heacox, Kenneth B. Nichols, Edward V. White, Stanley C. Walters*
THE BIG GAME SEASON FOR 1959	7	*Albert G. Hall*
REGULATIONS—SPECIAL DEER SEASONS	8	
3-D SIGHT AND HEARING OF OWLS	10	*Dr. LeRoy C. Stegeman*
OUR CHANGING SHORELINE	12	*Dr. Alfred Perlmutter*
KEELBOATS	16	*William L. Wessels*
THE STORY OF ARCHERY	18	*H. Wayne Trimm*
POPULAR SPORTING DOGS	22	*A. W. Bromley*
CENTERSPREAD		*H. Wayne Trimm*
DEER—FACTS AND FANCIES	26	*Dr. A. B. Hatch*
BIG DEER vs LITTLE DEER	30	*C. W. Severinghaus, Rosalind Gottlieb*
THE WOODCOCK	32	*Charles P. Brown*
THE BACK OF THE BOOK	34	*(Scatter Shots, Etc.)*
LETTERS TO THE EDITOR	44	*(From Our Readers)*
A BIT ABOUT A BAT	48	*Clayt Seagears*
THIRD COVER		*Clayt Seagears*
FOURTH COVER		*H. Lou Gibson*

STATE OF NEW YORK, NELSON A. ROCKEFELLER — *Governor*
CONSERVATION DEPARTMENT
DR. HAROLD G. WILM — *Commissioner*
J. VICTOR SKIFF — *Deputy Commissioner*
CECIL E. HEACOX — *Secretary*
CONSERVATION EDUCATION, CLAYT SEAGEARS — *Director of Division*
THE CONSERVATIONIST, A. W. BROMLEY — *Editor*
ROLAND B. MILLER, EARL A. WESTERVELT — *Editorial*
EARL McGUIRK, FRED CHAMBERS — *Photographers*
W. I. VAN DER POEL, JR. — *Design and Typography*

TO SUBSCRIBE. Print your name, street address, zone and state. Send with $2 (check, money order or cash at sender's risk) to *The Conservationist*, Room 335, State Campus, Albany, N. Y. Three years for $5. Single copies $.50. NO STAMPS PLEASE.

Permission is granted to reprint any text from this magazine provided credit is given to the New York State Conservation Department and to this magazine.

The Conservationist is an official publication of the N.Y.S. Conservation Dept., published every two months at the Department's offices, State Campus, Albany, N. Y. No advertising accepted. Subscription rate $2.00 per year. Second Class postage paid at Albany, New York. Printed in U.S.A. POSTMASTER: (Re: Undeliverable Second Class Matter) Please send form 3579 to THE CONSERVATIONIST, Room 335, State Campus, Albany, N. Y.

Adirondack Northway

by J. Burch McMorran, *State Superintendent of Public Works*

A proposed amendment to the State Constitution to allow use of a small part of the Adirondack Forest Preserve for a portion of a 175-mile, multi-lane, toll-free Albany to Canada highway will be voted on by the people of New York in November.

This Adirondack Northway, as the planned route is popularly known, is designed as a vital link in the National System of Interstate and Defense Highways and, accordingly, 90 per cent of its cost will be paid by the Federal government.

The Northway was first proposed by the Office of Civil Defense and Department of Defense of the Federal government aware that one of the most important defense needs would be a superhighway connecting Albany and Canada.

For several years selection of the best route for this proposed Northway has been one of the most difficult and perplexing problems occupying the attention of engineers in the State Department of Public Works. Our efforts have been directed toward selection of the best possible location from the standpoint of cost, traffic service, national security, economic benefit, the interests of sportsmen and conservationists, and vehicle operating expense. With these conditions in mind, we undertook a series of comprehensive studies, and as a result arrived at what we believe to be the most practical and economical solution.

The State Department of Public Works, the State Conservation Department and many other agencies and organizations—both public and private—feel that a happy balance has been achieved in our proposed Route "B" (*see map*) west of Schroon Lake and along the eastern fringe of the Forest Preserve area. The route selected is within 20 miles of the eastern boundary of the 100-mile wide Adirondack Park area and a considerable distance away from the heartland of the Preserve. The proposed route will require only 254 acres of Preserve and will cross a total of only seven and one half miles in its entire 175-mile length, with the longest single section less than three miles.

I am concerned, though, that many of the State's citizens, who will decide this tremendously important issue with their ballots this Fall, have a mistaken conception of the Adirondack Forest Preserve. They have an idea that the Preserve lands within the so-called "blue line" of the Adirondack State Park is a solid forest primeval. Many are unaware that while the Adirondack State Park contains more than five and one half million acres, the Forest Preserve lands within the blue line of the park amount to 2,252,969 acres. The 254

Northway would look like this modern, parkway-type highway

LIKE Mr. McMorran, I have taken a position in favor of an Adirondack Northway, fully aware, as Conservation Commissioner, of my responsibility to the people of the State in taking the stand I have.

The Forest Preserve belongs to all the people, not a favored few. My decision in favor of the Northway was based on the premise that it would bring the most benefits to the most people.

Mr. McMorran and I made an extensive flight by airplane over the controversial area to get an accurate picture of the land which would be needed for the Northway. Later, I made several additional flights over this section. I am firmly convinced that the use of this small part of the Forest Preserve will not sacrifice any real conservation values.

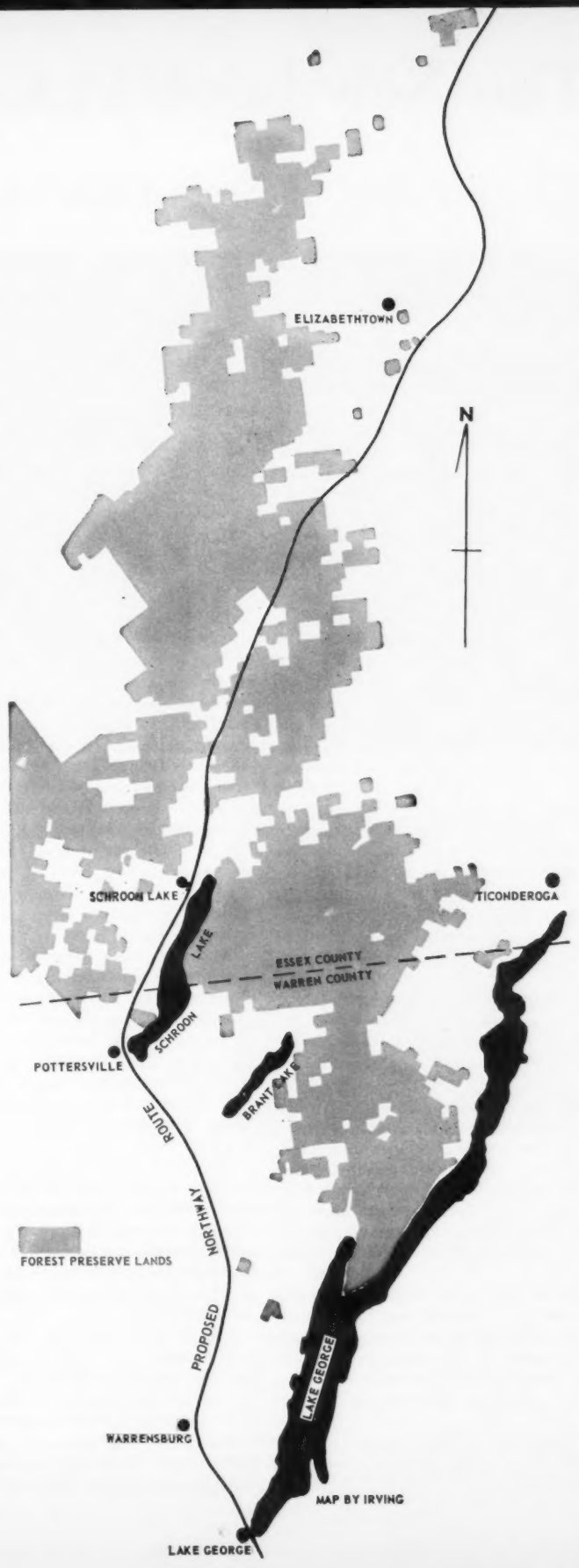
As Superintendent McMorran points out in the accompanying article, much of the Northway will go through settled valleys with many towns and villages. Very little of this land has true wilderness characteristics. Moreover, the amount needed is negligible. Far larger areas of true wild forest lands are acquired every year by the Conservation Department for the Forest Preserve.

The use of native trees and shrubs will help preserve the natural appearance of the Northway. It is designed to avoid the blocking of streams or the filling of ravines. All trout streams will have walkways to accommodate fishermen and also hunters.

Finally, for a limited access highway, the Northway will have an unusual number of interchanges, providing increased access to much of the Adirondack region. The toll-free Northway will help more people to become acquainted with, appreciate and enjoy one of the State's greatest assets: the picturesque Adirondacks.

I strongly believe that an Adirondack Northway will win many new friends to the cause of conservation.

H. Gillum



scattered Forest Preserve acres the Northway would cross comprise approximately 1/100th of one per cent of these Preserve lands. Every year the Conservation Department acquires far larger acreage of forest land for the Preserve.

Actually, the Adirondack State Park is a relatively settled section of Northern New York, already traversed by such important through highways as Route 9 from Lake George to a point north of Keeseville; Route 9N along Lake George to Elizabethtown, Upper Jay and Ausable Forks; Route 73 from Ticonderoga to Lake Placid, and Route 86 from Saranac Lake to Wilmington to connect with the Whiteface Memorial Highway and the new Whiteface skiing facilities.

Routes 3 and 365 cut east and west through the Park connecting Plattsburgh and Tupper Lake, and southwest to Old Forge, and Route 10 runs from Malone southward directly through the heart of the Park to connect with the Johnstown-Gloversville-Amsterdam area. Routes 28 and 28N are among others that pass through the Adirondacks. Along these routes are people, living and carrying on their business on their own private lands, in spite of their location within the blue line of the Adirondack State Park.

In the lower Adirondack region, the proposed Northway will closely parallel existing Route 9 which is highly commercialized with roadside tourist attractions. This section is certainly not a true wilderness area. Only after passing Schroon Lake does the proposed Northway touch Forest Preserve lands with wilderness characteristics. And here encroachment is so negligible that it certainly cannot be said to destroy any significant part of true wilderness Forest Preserve land. In effect, the Northway will traverse, for the most part, a settled valley with many towns and villages.

The proposed Adirondack Northway route to the west of Schroon Lake has been approved by many individuals as well as by conservation and related agencies throughout New York State. It is endorsed by New York State Conservation Commissioner Harold G. Wilm and former Conservation Commissioner Lithgow Osborne, long a member and a past president of the Association for the Protection of the Adirondacks. The Joint Legislative Committee on Natural Resources has endorsed the Northway as best meeting the needs of the people of New York State without encroaching on true wilderness values of the Forest Preserve. The proposed Northway has also been recommended by such leading conservationists as the New York State Conservation Council's Karl T. Frederick, lawyer and conservationist known throughout this country and abroad;

(*Continued from page* 3)

Fairfield Osborn, President of the Conservation Foundation; Fred Smith, Director of the Council of Conservationists; and Horace M. Albright, former Director of the National Park Service. It is supported by such groups as the Council of Conservationists, the Adirondack Park Association, the Adirondack Conservation Council, the Lake Placid Garden Club and many other local Adirondack organizations. County and town officials in the North Country are also supporters of proposed Route "B."

The Forest Preserve belongs to all the people of the State, to be sure, but because of its inaccessibility, few have been able to enjoy the many wonderful features it offers. The Northway will bring the Forest Preserve and all its delights and wonders to many more of our citizens. These enjoyments most certainly are in keeping with the conservationists' concept of "wise use."

The Northway will provide not only swift but safe access to the scenic beauty of this vast natural resource with its modern campsites, hiking trails, and hunting and fishing opportunities. During the Winter, it will facilitate travel to the finest skiing and Winter-sports developments in the East.

We should also remember that the Adirondack people and communities need the Northway for safety in a national emergency, and to develop and improve their economy. Roads in the Adirondack region have long been inadequate.

The Northway will have the appearance of an attractive parkway. Its four-lane construction will be divided by a center mall with native trees and shrubs in keeping with the natural growth of the region. It will have frequent cross-overs at streams and intersecting roads to permit convenient passage from one side of the highway to the other. Roadside commercialization will be prohibited in keeping with Federal laws and standards for Interstate routes. This will guarantee scenic vistas of the beautiful Adirondacks.

The Northway will enable us to prepare for the defense and security of our State and Nation; provide safe and speedy access to the beautiful Adirondack area, and help stimulate the economy of the North Country and the State as a whole.

It is my sincere hope that when, this Fall, the citizens of the Empire State go to the polls they will approve the Constitutional Amendment permitting us to proceed with construction of this vital, scenic section of our great Interstate highway system.

The New Look at Cold

New York State's

ON a sunny afternoon in the 1880's, a visitor from New York to Cold Spring Harbor, rounding a turn on a quiet dirt road, would view through the shimmering haze of a Long Island Summer's day, a scene that might have been painted by Childe Hassam or Winslow Homer.

On one side, his eye would meet the sparkling blue waters of Long Island Sound; on the other, nestled in a clearing in the woods, a neat walk of mussel shells bordered by green sod; at the end of the walk, a large, white, frame building recently established as New York State's second fish hatchery.

In his annual report of 1889, Fred Mather, the hatchery's superintendent, pointed out a highlight in the composition: "A fountain in front served as Winter quarters for golden ide, carp, and some ornamental wild fowl: woodducks, Chinese mandarin ducks, teal and widgeon." Mather also commented on young visitors catching crickets and throwing them in the ponds to watch the flashing splash of the trout.

Today's visitor, after traveling bumper-to-bumper from New York, rounds the same curve on a four-lane strip now known as Route 25A. He looks out on a pleasant scene although not the idyllic setting of a bygone era. In place of the white, frame building stands a structure of brick and structural tile—the new Cold Spring Harbor fish hatchery—neat, modern and efficiently functional in design. Due to lack of ground space, living quarters for the hatchery foreman are provided in the same building. The building is fireproof and steel troughs replace conventional wooden troughs.

The new building follows a progressive plan in which an augmented water supply of more than 500 gallons per minute and new rearing ponds have increased Cold Spring Harbor's annual production of trout from 5,000 to 20,000 pounds.

The thousands of trout raised each year not only replenish the streams and ponds of Long Island but also are stocked in the waters of the upstate counties of Westchester, Putnam and Dutchess.

The main thread in the history of the hatchery at Cold Spring Harbor is the story of the Conservation Department's advances in the field of fish culture; of its dedicated workers whose know-how pioneered most of the significant developments in the artificial propagation of trout, keeping New York a leader for nearly a century.

There are other threads woven through the Cold Spring Harbor story. One is Nature's bounty of the kind of water a fish hatchery needs. The State Fish Commission's report of 1880 pointed out: "Long Island is an island of springs and spring brooks . . . there is something, too, in the temperature character of the water that is favorable to trout, for the young even when kept in confinement and fed on natural food, grow nearly twice as fast as they do in many of the inland streams and ponds of the State . . ."

Another strong thread in the story is Long Island's tradition of producing outstanding public-spirited people. Of such stock was John D. Jones and his brothers who made the story possible.

When Eugene C. Blackford, State Fish Commissioner, was looking for a suitable site for a hatchery on Long Island, Jones offered a ten-year lease of part of his land on what the Matinecock Indians called Nochaquetock River, also known as Oyster River.

Before the first lease expired, the Fish Commission negotiated a new lease with Jones, who was a marine underwriter in Manhattan. No money was ever involved in negotiating the indenture—a refreshing note in this materialistic age.

The Conservation Department may keep the Jones property as long as it continues to operate a fish hatchery on it, to wit:

"The term of these presents shall at the date thereof (*Ed. Note: Sept. 20, 1887*) and shall continue so long as the demised premises shall be exclusively and uninterruptedly used, occupied and maintained by the parties of the second part for the purpose described in the preceding first article."

John D. Jones also gave the Commission an abandoned woolen mill on the premises which served until the State constructed the original hatchery building pictured here. John's brothers, Townsend and William, also made important contributions. Townsend donated some of his property across the road from the

The Authors: (1) Department Secretary, (2) Superintendent of Fish Culture, (3) Foreman, Cold Spring Harbor Hatchery, (4) Retired Foreman, Cold Spring Harbor Hatchery

Spring Harbor

by Cecil E. Heacox[1], Kenneth B. Nichols[2], Edward V. White[3], and Stanley C. Walters[4]

Second Oldest Fish Hatchery Gets a Face Lifting

The new hatchery building at Cold Spring Harbor. School children are frequent visitors there

The original Cold Spring Harbor Hatchery building and foreman's residence

hatchery. When stone was needed for the huge retaining wall of the salt water pond, Townsend Jones sent three schooners to Connecticut and from the brownstone quarries, each vessel brought back 200 tons.

When a small cottage was needed for a superintendent's residence, John and Townsend chipped in and had built "a large and elegant dwelling" of nineteen rooms on a hill overlooking the harbor.

Of such stock, too, were Peter Gorman, Foster Van Ausdall, E. A. Cooper, Fred E. Gardiner and the Walters, father and son, who as foremen, gave 83 years of continuous service to the State. This is the crew that moved the 600 tons of retaining wall stone from the boats to the hatchery in wheel barrows over soft ground!

Fred Mather praised Charles H. Walters as "a man of sterling qualities ... he has been of more service to me than any man in my employ since I came to Long Island ... he is there night and day and when the ground is frozen and a thawy, rainy night comes to melt the snow rapidly, his lantern may be seen about the dams and sluices all night."

Stanley Walters was born during the blizzard of 1888. The doctor lived next door. The snow was to the top of picket fences. Charles, a giant of a man, carried the doctor to his house, and later, back again. He then walked the shore to the hatchery and stayed for 36 hours to make sure the fish survived the blizzard.

These hard-working, dedicated men surmounted many problems not actually associated with fish culture. High tides, for instance, often sweep in to submerge the rearing ponds. Mather noted that on November 24, 1885, there was a high tide which rose eight inches above any former

tide within the recollection of any person living in the place.

But that was before the 1938 hurricane. The 1885 high tide was marked on a highway culvert. During the '38 hurricane, the tide was 42 inches above the old mark! Charles Walters, although retired, was on hand and made the measurement.

In 1938, most of the fish in the hatchery were casualties of the hurricane. But, in the 1942 "blow," due to a more adequate warning, Stanley Walters and his crew moved over a quarter of a million fish to higher level ponds before the tide came in to flood the lower ponds. In this tradition of rugged individualism was Fred E. Gardiner. He had a wooden leg but the handicap did not bother him. He wore socks and boots on both legs. He claimed he could feel the sock on his wooden leg slipping down so he neatly nailed it in place.

There were labor problems in those days, too. In 1884, two girls were put on the payroll at 50 cents a day. "The girls were very handy at picking out eggs but the place was too cold and the snows too deep for them to work outdoors."

One of the most important threads in the Cold Spring Harbor hatchery story was Fred Mather, one of the pioneers in the early history of fish culture. He was also one of the most articulate. Mather wrote a book, "Modern Fish Culture in Fresh and Salt Water" (1900), still a classic in the field.

At first, Mather planned to concentrate on the artificial propagation of salt water species. Among the species were shad, salmon and smelt. Adult smelt were netted from the Carman's River near Brookhaven and stocked in the hatchery stream. Later a historic run developed.

For a few years, large numbers of tom-cod or "frost-fish," a popular little food fish, were raised.

The propagation was, at first, thought to be successful. Mather in 1889 reported: ". . . the tom-cod turns up on the breakfast table with frequent regularity and its increase by our operations is appreciated." An understanding of year class dominance and periodic cycles in fish was, of course, unknown in those days. Nevertheless the little tom-cod did provide one of the most amusing incidents of the day.

The Long Islander (a weekly newspaper founded by Walt Whitman) of January 25, 1890, published the following: "Half a million young tom-cods . . . were sent from the State Hatchery . . . to William S. Prime of Huntington [author of "I Go Afishing," a collectors' item in sporting literature] to be planted in our harbor, one day last week. . . ."

This was copied by several papers. *The Brooklyn Eagle*, either in mistake or with tongue-in-cheek, gravely announced that half a million *tom cats* had been emptied into Huntington Harbor. This started the newspaper wits and *The Suffolk Bulletin* called for the Board of Health to consider the ways to allay the pestilence sure to follow.

Cod eggs were procured in Fulton Market. About the difficulties of hatching cod eggs, Mather's report offered a wry comment: ". . . we can say that under favorable conditions such as a hatchery through which the wind does not blow so as to freeze solid the water in hatching jars within ten feet of a red-hot stove, we can hatch codfish . . ."

For many years, lobsters were raised. One of the serious limitations of artificial lobster propagation is the cannibalism which takes place. The crustaceans, which shed their shells as they grow, offer soft little tidbits to the others still protected by a hard shell. Mather commented: "We noticed that when our lobsters began to moult, their brethren which had not yet cast their shell, much preferred to dine upon their kindred to eating the soft clams which we offered them . . ."

But Cold Spring Harbor's distinguished record in trout production overshadowed the earlier failures in the artificial propagation of salt water species.

The hatchery at Cold Spring Harbor was the receiving point of the first shipment of brown trout eggs in this country when on February 24, 1883, the North German Lloyd liner "Werra" docked in New York with 80,000 brown trout eggs, a gift to Fred Mather from Herr F. Von Behr, president of the Deutsche Fisherei Verein. Mather, a few years earlier, had made the acquaintance of the brown trout on the business end of a line. As a representative of the United States to the International Fisheries Exposition at Berlin in 1880, Mather had taken a busman's holiday on the streams of the Black Forest near Baden. He was thrilled by the fighting qualities of *Salmo trutta* and Von Behr promised to send him a shipment of eggs. Although received without fanfare, this was an historical event that eventually changed America's sport fishing history.

Of the brown trout produced from the original shipment of eggs, a selected number were kept in hatchery pools for brood stock. One trout grew much larger than the others. He was named "Colonel Von Behr" in honor of the donor. A day came when several dignitaries were scheduled to visit the hatchery and the "Colonel" was removed from the outside pool and placed in an aquarium in the hatchery building where he could be displayed to greater advantage.

When the visiting group was conducted through the hatchery, the great fish was not in the aquarium. To everyone's horror, the "Colonel" was stretched out on the floor . . . dead! He had jumped out during the absence of an attendant. Thus the career of the Conservation Department's most historic brown trout came to an untimely and ignoble end although the breed he helped establish went on to greater glory.

The Cold Spring Harbor hatchery, because of its nearness to the Port of New York, continued to receive fish eggs from many countries of Europe.

By the same token, fish eggs have gone out to all parts of the world from Cold Spring Harbor. Recently a shipment of rainbow trout eggs went to Afghanistan via KLM Airlines.

Besides being a landmark for over 70 years, the hatchery at Cold Spring Harbor has been a focal point for distinguished visitors from all over the world.

At first they came to study fish cultural methods and techniques. In 1885, for instance, France sent Prof. Henry Grosjean to survey Cold Spring Harbor's facilities so his government could build a hatchery. Later in the same year, Prof. J. Cossar Ewart of the Scotch Fisheries Improvement Association made an inspection. From England came William Moore and from Mexico, Senor Alberto Albarez.

Today, Cold Spring Harbor hatchery plays host to more visitors than some State Parks. In the parking area are seen license plates from every state in the Union. Visitors continue to come from foreign lands due to the proximity of United Nations headquarters. Buses bring school groups from kindergarten to college level. Here one scene remains unchanged: Youngsters still catch crickets to throw in the ponds. Lacking crickets, they frequently resort to pebbles.

The hatchery at Cold Spring Harbor is a vital unit in the Conservation Department's extensive network of fish cultural stations throughout the State. It is more important today than it was in Fred Mather's time.

From a practical, realistic viewpoint, the hatchery's development is evaluated in terms of fish production. Since the beginning, over 15,115,000,000 fish of many different species have been raised, including more than 27,000,000 trout.

But these are merely statistics. Its intrinsic worth may better be measured in terms of the countless hours of fishing enjoyment it has provided and the great role it has played in maintaining the type of recreational fishing of which New York State is so proud and has in such abundance.

The Big Game Season for 1959

by Albert G. Hall, *Chief Bureau of Game, New York State Conservation Department*

WHEN we talk about the big game season in New York, what we are really saying is "deer season." Now before we get any dark looks from bear hunters, or bears either for that matter, let us hasten to say that we are well aware of the many days of pleasure that the "dyed-in-the-wool" bear hunter enjoys here in New York—and aware, too, that bruin's population is on the upgrade. Nevertheless, we must accept the fact that deer is the main event in our big game picture.

So, let's review very briefly the status of the whitetail deer as it looks to us this Fall and how this is reflected in the provisions made for the 1959 season. First, just to get this picture into better perspective, let's review the history of our deer herd and our deer seasons a bit. It's hard to realize that it is only within the past 20 to 30 years that many of the peripheral Catskill counties and the counties of the southern tier and the central and western regions of the State have had deer seasons. The deer take in New York State in 1900 was only about 5,000, most of these from the Adirondacks. In contrast, we now have an annual take of approximately 70,000 and, if we were harvesting deer in proportion to the available crop and actual need, our annual take would be in the neighborhood of 100,000. Why has the take increased and why should it be even more than it is?

In New York State at the turn of the century, deer hunting was limited primarily to the Adirondacks and many, erroneously, still feel that this region provides the best deer hunting in the State. Although hunting there is still good, several developments have taken place to change the picture since the early days.

Meanwhile, great changes in environmental conditions for deer had been taking place in the Catskills and in central and western New York, as well. Lumbering, particularly in the Catskills, and the resultant sprout growth and new succession of browse species had created ideal conditions for the then small deer population. It responded vigorously and in addition was greatly reinforced by the invasion of deer from across the line in Pennsylvania; animals moving from their own over-browsed range to regions of ideal browse. Here they flourished and as a result we now have sizeable deer herds in all regions of the State, including some areas at least partially metropolitan in nature.

Along with this expansion in our deer herd came a variety of problems in deer management. Each region had its own problems and, even more important, unique problems developed in specific areas within regions. In the north country, a prohibition against lumbering in much of the central Adirondacks, along with sentiment against antlerless deer harvests and inaccessibility of these interior areas to hunters, resulted in a deer herd controlled more by Nature than by man. Heretofore, the proper utilization of the resource has been impossible.

In the Catskills, the realization that proper utilization of the deer herd was not made has been long in coming. As a consequence, starvation and crop damage have occurred in some Catskill areas. In the central and western region, harvests have been more in line with deer populations but unusually severe Winters have caused some losses by starvation and by dog depredations. The answer here in this broad region therefore, is not an annual, one-day deer-of-either-sex season. Such a season could result in too heavy a take of deer in parts of the peripheral Catskill counties and in certain areas of the central and western regions. At the same time, a one-day, deer-of-either-sex season is inadequate to harvest the surplus which still exists in the central Catskills and in the central Adirondacks.

Deer legislation, passed in 1959, was designed to help us solve these problems that exist in the different regions of the State and has guided our recommendations. It eliminated the deer-of-either-sex day in the Southern Zone in order that the population in those areas of scarcity might build up. However, it provided that post-season, deer-of-either-sex seasons could be held in counties or parts of counties where populations are high and where deer have over-browsed their range or are doing damage to agricultural crops. Finally, it permits the Department to declare up to ten days of deer-of-either-sex seasons in specified areas of the Northern Zone to encourage hunters to hunt interior areas where the population is high and the range is over-browsed, or to eliminate any deer-of-either-sex harvests in those areas of the Northern Zone easily accessible, where populations are not as high.

There will be controlled, post-season, deer-of-either-sex seasons in parts of Sullivan, Dutchess, Ulster and all of Putnam county (*see map*). In Sullivan county, damage to deer range as well as to agricultural crops demanded such additional harvest. In the other counties, where deer have caused extensive damage to orchards and nurseries, the post-season harvests is provided as a means of supplying some degree of relief to the landowners. In the central Adirondack area where harvests are low and starvation losses frequently are heavy, we will have a ten-day, deer-of-either-sex season while in the peripheral Adirondack areas no deer-of-either-sex harvests will be permitted. It is also possible that special post-seasons will be declared, as permitted under the law, to satisfy specific damage problems if they develop during the Winter months.

In addition to the above seasons, legislation specifically designed to meet the problem of too many deer within urbanized areas, was passed to meet such need in Westchester County. As a consequence, archers will be permitted this year to take a second deer in Westchester County during a longer archery season. The "second deer" will have to be tagged at a Department checking station as provided by Department order. In addition, a "shot gun only" season is authorized, during January. Hunting during the shot gun only season will be by permit only with the number of permits limited and issued only to those who, before applying, have written permission of the person owning the lands upon which they wish to hunt.

Thus, New York's 1959 season, although fairly normal as far as the routine buck season is concerned, will have more variety than any big game season heretofore. Such variety is sound management based on the history of deer in New York and the problems in herd management with which we are confronted today. All our deer management problems depend, in the first instance, upon adequate harvests which generally have not been made.

This year's big game season is a preface of things to come. As years go by, we should expect greater season variety to provide for harvests suited to local needs, for New York State is large and deer problems vary greatly from area to area and from region to region.

1959 Regulations—Special Deer Seasons

Northern Zone

INTERIOR ADIRONDACKS — Deer-of-either-sex, Nov. 22-Dec. 1. During the last 10 days of the regular big game season in the Northern Zone, a big game licensee, or archers with the special archery license may, if they have not previously taken a deer during the '59 season, take a deer-of-either-sex in an interior area of the Adirondacks shown and described on the accompanying Big Game Map. No special permit is required. Tagging and transportation regulations are the same as apply for the regular big game season.

Southern Zone

The opening date and duration of the regular big game season is the same, this year, for the entire Southern Zone—inclusive of Catskill and Eastern and Central and Western counties (see Big Game Map). There will be no deer-of-either-sex season in any Central and Western counties of the Southern Zone this year but in Catskill and Eastern counties, special deer-of-either-sex seasons — by permit only—have been set in parts of Sullivan, Ulster, Dutchess, Westchester and all of Putnam counties. These areas are designated "A," "B," "C," "D," "E" and "F," and described on the accompanying map. In addition, a special, two deer-of-either-sex season will be in effect for long bow only in Westchester County this Fall. (See map for dates of these special seasons.)

Following are Department regulations for the special deer-of-either-sex season in specified areas of the Catskill and Eastern counties; "A,", "B," "C," "D," and "E" (see Map for locations):

Deer-of-Either-Sex Season— Dec. 14-Dec. 18

—by permit only—

Permit quotas have been set as follows: For Dutchess County (Areas "C" *and* "D")—10,500; for Putnam County (Area "E")—4,000; for Sullivan County (Area "A")—8,000; for Ulster County (Area "B")—5,000.

How To Apply For Permits

(This procedure must be followed exactly)

1. Persons holding valid unfilled big game licenses may request permits *by United States mail only* by addressing their requests to Warren H. McKeon, District Game Manager, 105 Dutchess Turnpike, Poughkeepsie, N. Y., *for special season areas in the Counties of Dutchess, Putnam and Ulster*, or to John J. Whalen, District Game Manager, Stamford, N. Y., *for the special season area in the County of Sullivan.*

2. Requests must *not* be postmarked *earlier than December 2, 1959*, and must be received at the District Game Managers' offices not later than 5 P.M. December 8, 1959. The envelope in which the request is mailed must be plainly marked in the lower left-hand corner *"Post-Season-Permit."*

3. Request for permit must give legibly the name, address, big game license number of the applicant and the name of the county in which the applicant intends to hunt.

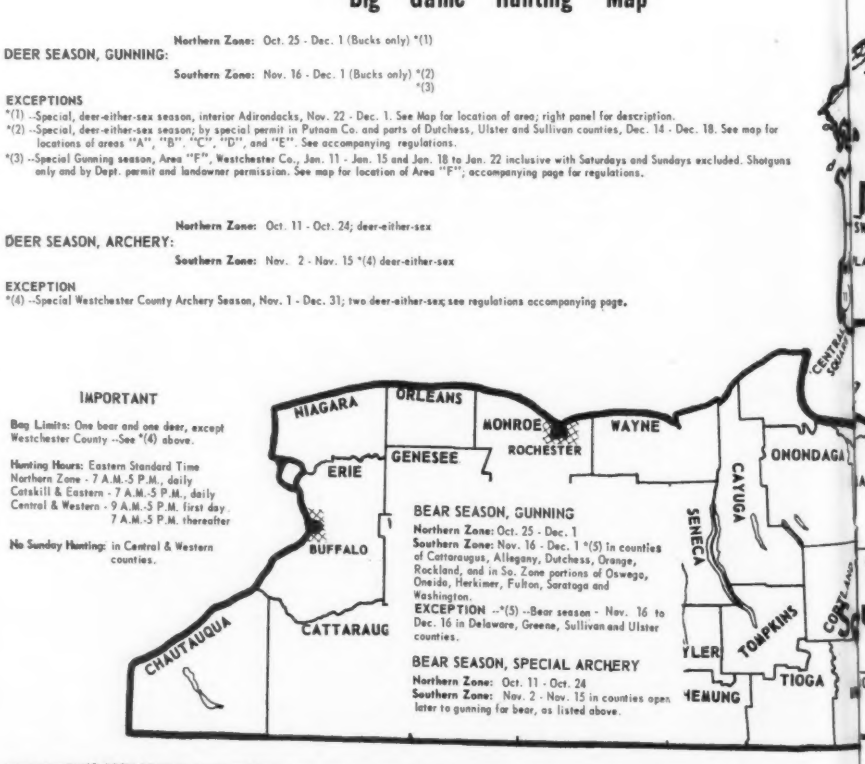
4. A stamped, self-addressed return envelope must be enclosed with the request. Request must be accompanied by a permit fee of $1 in the form of a check or postal money order *only* (no cash accepted) made out in favor of the N.Y.S. Conservation Department.

5. An applicant for permit may submit *not more than one request* and *not more than one request* may be submitted *in one envelope.*

6. Applicant shall be entitled to not more than *one* permit reservation and it shall be non-transferable. Fees from unacceptable applications will be returned.

Issuance of Permits

The Poughkeepsie and Stamford District Game Manager offices will issue permit reservations for areas requested to the limit of quotas established; re-


1959
Big Game Hunting Map
DEER SEASON, GUNNING:
Northern Zone: Oct. 25 - Dec. 1 (Bucks only) *(1)
Southern Zone: Nov. 16 - Dec. 1 (Bucks only) *(2) *(3)
EXCEPTIONS
*(1) --Special, deer-either-sex season, interior Adirondacks, Nov. 22 - Dec. 1. See Map for location of area; right panel for description.
*(2) --Special, deer-either-sex season; by special permit in Putnam Co. and parts of Dutchess, Ulster and Sullivan counties, Dec. 14 - Dec. 18. See map for locations of areas "A", "B", "C", "D", and "E". See accompanying regulations.
*(3) --Special Gunning season, Area "F", Westchester Co., Jan. 11 - Jan. 15 and Jan. 18 to Jan. 22 inclusive with Saturdays and Sundays excluded. Shotguns only and by Dept. permit and landowner permission. See map for location of Area "F"; accompanying page for regulations.
DEER SEASON, ARCHERY:
Northern Zone: Oct. 11 - Oct. 24; deer-either-sex
Southern Zone: Nov. 2 - Nov. 15 *(4) deer-either-sex
EXCEPTION
*(4) --Special Westchester County Archery Season, Nov. 1 - Dec. 31; two deer-either-sex; see regulations accompanying page.
IMPORTANT
Bag Limits: One bear and one deer, except Westchester County --See *(4) above.
Hunting Hours: Eastern Standard Time
Northern Zone - 7 A.M.-5 P.M., daily
Catskill & Eastern - 7 A.M.-5 P.M., daily
Central & Western - 9 A.M.-5 P.M. first day
7 A.M.-5 P.M. thereafter
No Sunday Hunting: in Central & Western counties.
NIAGARA
ORLEANS
MONROE
ROCHESTER
WAYNE
ONONDAGA
GENESEE
ERIE
BUFFALO
CATTARAUG
CHAUTAUQUA
CAYUGA
SENECA
TOMPKINS
TIOGA
BEAR SEASON, GUNNING
Northern Zone: Oct. 25 - Dec. 1
Southern Zone: Nov. 16 - Dec. 1 *(5) in counties of Cattaraugus, Allegany, Dutchess, Orange, Rockland, and in So. Zone portions of Oswego, Oneida, Herkimer, Fulton, Saratoga and Washington.
EXCEPTION --*(5) --Bear season - Nov. 16 to Dec. 16 in Delaware, Greene, Sullivan and Ulster counties.
BEAR SEASON, SPECIAL ARCHERY
Northern Zone: Oct. 11 - Oct. 24
Southern Zone: Nov. 2 - Nov. 15 in counties open later to gunning for bear, as listed above.
NO OPEN SEASON IN MONTGOMERY, NASSAU, SUFFOLK AND PARTS OF ALBANY COUNTY; NOR IMMEDIATE VICINITIES OF BUFFALO AND ROCHESTER; SEE 1959 HUNTING GUIDE FOR DESCRIPTION OF CLOSED AREAS.

serving the right, when and if the quota of any county area is filled, to issue permit reservations for an alternate county area. With permit reservation, successful applicants will receive a detailed map of the permit area, a transcript of Department regulations governing hunting therein and directions to Department check station in the area where reservation must be presented in person for issuance of permit.

Special Archery Season—Westchester County, Nov. 1-Dec. 31

During this extended 1959 archery season in Westchester County, holders of a big game license or a special archery license may take two deer-of-either-sex. The licensee may take both deer in Westchester County, or, if licensee has already taken another deer elsewhere in the State during the current big game season, he may take a second deer by long bow only, in Westchester County during this special season. Department regulations provide, if and when the second deer is taken by long bow in Westchester County during the season established, that the taker—having with him the retained stub of his original big game or special archery license—shall transport said second deer to the Department checking station at the intersection of Route 100 and Route 35 (Whitehall Corners) prior to 7 P.M. (E.S.T.) of the day taken.

No such additional deer shall be possessed or transported after 7 P.M. of the day taken within Westchester County nor shall such deer be transported out of Westchester County unless it has been tagged as herein provided.

Special Westchester County Gunning Season—Jan. 11-15 *and* Jan. 18-22

(Closed on intervening Sat. and Sun.)

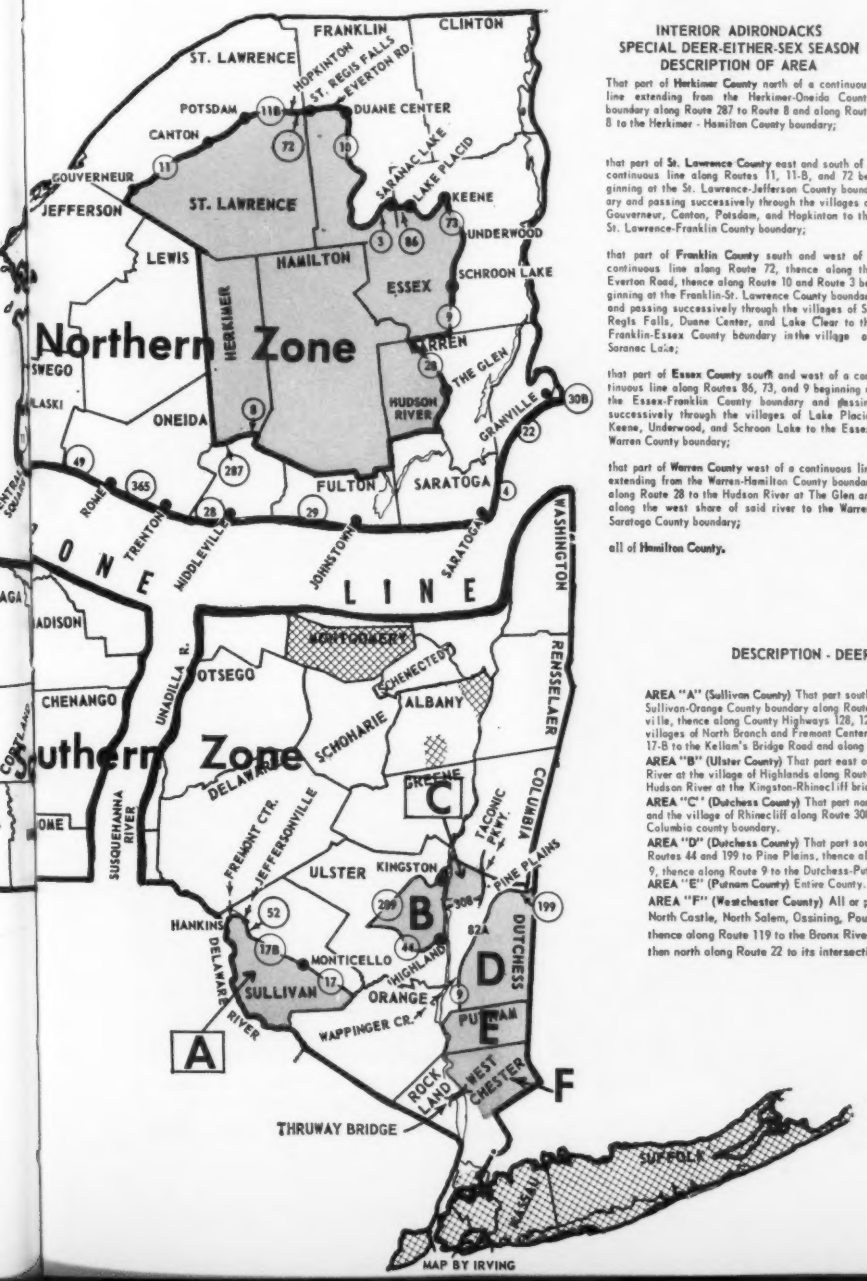
See Area "F"—Location and description, accompanying Map.

This highly-restricted, special post-season in Westchester County has been set in an effort to harvest more of the top-heavy deer herd in this residential county and to reduce thereby the heavy property damage loss suffered by county residents and the costly highway kill of deer in this area.

The deer-of-either-sex season will be operated under permit quota, subject to landowner permission. Hunting will be restricted to shotguns using slugs only.

How To Apply For Permit

Big game licensees who have not previously taken a deer during the '59 season may request application for permit by mail to District Game Manager, N.Y.S. Conservation Department, 105 Dutchess Turnpike, Poughkeepsie, N. Y., postmarked *not earlier* than December 21, *nor later* than December 31. District office will send applicant: (1) Official permit application form, (2) detailed map of hunting area and regulations governing this special season, (3) forms for landowner(s) permission to hunt, (4) names and addresses of town clerks to whom application must be presented, *in person*, for issuance of permit.



MAP BY IRVING

INTERIOR ADIRONDACKS SPECIAL DEER-EITHER-SEX SEASON DESCRIPTION OF AREA

That part of **Herkimer County** north of a continuous line extending from the Herkimer-Oneida County boundary along Route 287 to Route 8 and along Route 8 to the Herkimer - Hamilton County boundary;

that part of **St. Lawrence County** east and south of a continuous line along Routes 11, 11-B, and 72 beginning at the St. Lawrence-Jefferson County boundary and passing successively through the villages of Gouverneur, Canton, Potsdam, and Hopkinton to the St. Lawrence-Franklin County boundary;

that part of **Franklin County** south and west of a continuous line along Route 72, thence along the Everton Road, thence along Route 10 and Route 3 beginning at the Franklin-St. Lawrence County boundary and passing successively through the villages of St. Regis Falls, Duane Center, and Lake Clear to the Franklin-Essex County boundary in the village of Saranac Lake;

that part of **Essex County** south and west of a continuous line along Routes 86, 73, and 9 beginning at the Essex-Franklin County boundary and passing successively through the villages of Lake Placid, Keene, Underwood, and Schroon Lake to the Essex-Warren County boundary;

that part of **Warren County** west of a continuous line extending from the Warren-Hamilton County boundary along Route 28 to the Hudson River at The Glen and along the west shore of said river to the Warren-Saratoga County boundary;

all of **Hamilton County.**

DESCRIPTION - DEER-OF-EITHER-SEX AREAS A-B-C-D-E-F

AREA "A" (Sullivan County) That part south and west of a continuous line extending from the Sullivan-Orange County boundary along Routes 17, 17-B, and 52 to the village of Jeffersonville, thence along County Highways 128, 122, 95, and 94 and passing successively through the villages of North Branch and Fremont Center to the village of Hankins, thence along Route 17-B to the Kellam's Bridge Road and along this road to the Delaware River.

AREA "B" (Ulster County) That part east of a continuous line extending from the Hudson River at the village of Highlands along Routes 44, 209, 9-W and 199, successively, to the Hudson River at the Kingston-Rhinecliff bridge.

AREA "C" (Dutchess County) That part north and west of a continuous line extending from the Hudson River and the village of Rhinecliff along Route 308, Route 199, and the Taconic State Parkway to the Dutchess - Columbia county boundary.

AREA "D" (Dutchess County) That part south and east of a continuous line extending from the Connecticut State boundary along Routes 44 and 199 to Pine Plains, thence along Routes 82-A and 44 to Wappingers Creek, thence along Wappingers Creek to Route 9, thence along Route 9 to the Dutchess-Putnam County boundary.

AREA "E" (Putnam County) Entire County.

AREA "F" (Westchester County) All or parts of the townships of Bedford, Cortland, Lewisboro, Mt. Pleasant, New Castle, North Castle, North Salem, Ossining, Pound Ridge, Somers and Yorktown north of a line beginning at the Hudson River, thence along Route 119 to the Bronx River Parkway, thence north along the Parkway to the traffic circle at Kensico Dam, then north along Route 22 to its intersection with Route 120, thence east on Route 120 to the Connecticut State line.

3-D Sight and Hearing of Owls

by Dr. LeRoy C. Stegeman,
State University College of Forestry, Syracuse University

OWLS are remarkable birds! They perform many feats that make us marvel, one of the most remarkable of which is their ability to catch so small a creature as a mouse darting through winding, grass-covered runways in weed-grown meadows or brush-covered fields. Not only do they accomplish this in daylight, but they do it in what we consider darkness. What is still more remarkable, they locate their prey while they are in flight. These and other feats have stimulated man to study owls. We have found that they possess remarkable adaptations, particularly three-dimensional sight and hearing.

Consider for a moment the flight of owls—so slow and silent that they can literally stalk their prey while in flight. This achievement they owe to wing surfaces so large, relatively, in comparison to body weight, that the bird can maintain flight with an unusually slow wing beat. They are so adapted that an owl can hover quietly above a chosen spot or, if need be, stop and turn abruptly. And Nature has provided the owl with yet another bonus—flight feathers so broad, soft and lacy-edged that the wings make little or no noise in flight. *Figure 1* shows the wing of an owl and that of a pheasant for comparison. Their weight is approximately the same, yet the pheasant is a rapid, noisy flyer.

Figure 1

For the owl, these structural adaptations make possible a stealthy approach and provide a well-directed attack. Therefore, if the target can be sufficiently defined, the owl's powerful, well-armored feet (see *figure 2*) can make the capture. Thus, the stage is set for the role to be played by two more remarkable adaptations—the owl's sight and hearing.

Figure 2

Figure 3 shows the arrangement of the eyes and facial discs in the long-eared owl. The eyes are very large and conspicuous but the ears, which, incidentally, are not the feathered tufts that project from the head, are covered by the layer or disc of feathers which constitute the face mask. The ears actually are larger than the eyes, as will be shown later. It is obvious from the photograph that both eyes are directed in the same plane. Thus, the owl possesses stereo, or three-dimensional, vision. Since the ear openings are directed forward, as are the facial discs, they also receive sound waves from the same direction. Accordingly, the receiving organs for both sight and hearing can function in the three dimensions. In most birds the eyes are smaller and more laterally placed. Therefore, they see in different directions and do not have the sense of depth as do the eyes of owls and humans. Also, the ears of most birds are laterally placed and the external opening relatively much smaller (see *figure 4*, side view of head of pheasant). The efficiency of sight and hearing is less in most birds and the third-dimensional effect is lost.

Figure 3

Figure 4

The eyes of owls are remarkable structures. They are relatively enormous and have special structural characteristics which give them much greater acuity of sight than man possesses.

Figure 5 shows that a large part of the head is occupied by the eyes in the great horned owl and the same is true of the long-eared owl. The eyeball is large and fits the socket very closely—so closely, in fact, that movement of the eye within the socket is limited. Perhaps this is to assure proper alignment, but, as a consequence, when an owl wishes to look to one side it must turn its entire head. In contrast with that, man's eyeball is much smaller than the socket, and he can roll the eyes freely, permitting him to look up, down or sidewise while holding his head relatively still.

Another striking structural feature of the eyeball of an owl is the ring of bones consisting of many overlapping segments located within the forepart of the eyeball. This ring is shown in approximately

the normal position in *Figure 5*. This strengthening of the eyeball is associated with muscles, enabling the shape of the lens and cornea to adjust for very sharp focus at varied distances. Thus, their accommodation is much greater than man's. These are not the only structural specializations found in the eyes of owls, but they are sufficient to indicate that their eyes are much superior to ours, enabling them to meet their special needs.

Dr. Lee R. Dice tested several species of owls to determine the minimum light intensity necessary for them to find dead prey by sight. He concluded that barred owls, long-eared owls and barn owls are capable of seeing objects under an illumination of between one one-hundredth and one-tenth of the light intensity required by man (*American Naturalist* 79:385-416). Mr. R. J. Pumphrey, who made intensive studies of the sense organs of birds, makes the statement based upon eye structure that ". . . it is unlikely that the sensitivity of the owl's eye is more than 100 times that of the fully dark-adapted human eye." ("The Sense Organs of Birds," in *Annual Report* of the Smithsonian Institution, 1948: 305-330.) Based upon the study of structure and upon the actual testing of the birds themselves, it seems likely that the seeing ability of the long-eared owl, used here as an example, may be 100 times greater than that of man.

Figure 5

Figure 6

Figure 7

The ears of the long-eared owl are no less remarkable than its eyes. *Figure 3* gives no idea of the surprise that awaits investigation. When the feathers of the facial discs are pushed forward, a front view reveals an immense external ear opening as shown in *figure 6*. These openings are so arranged as to give "binocular" or "bi-aural" reception so that the source of sound may be located in all three dimensions.

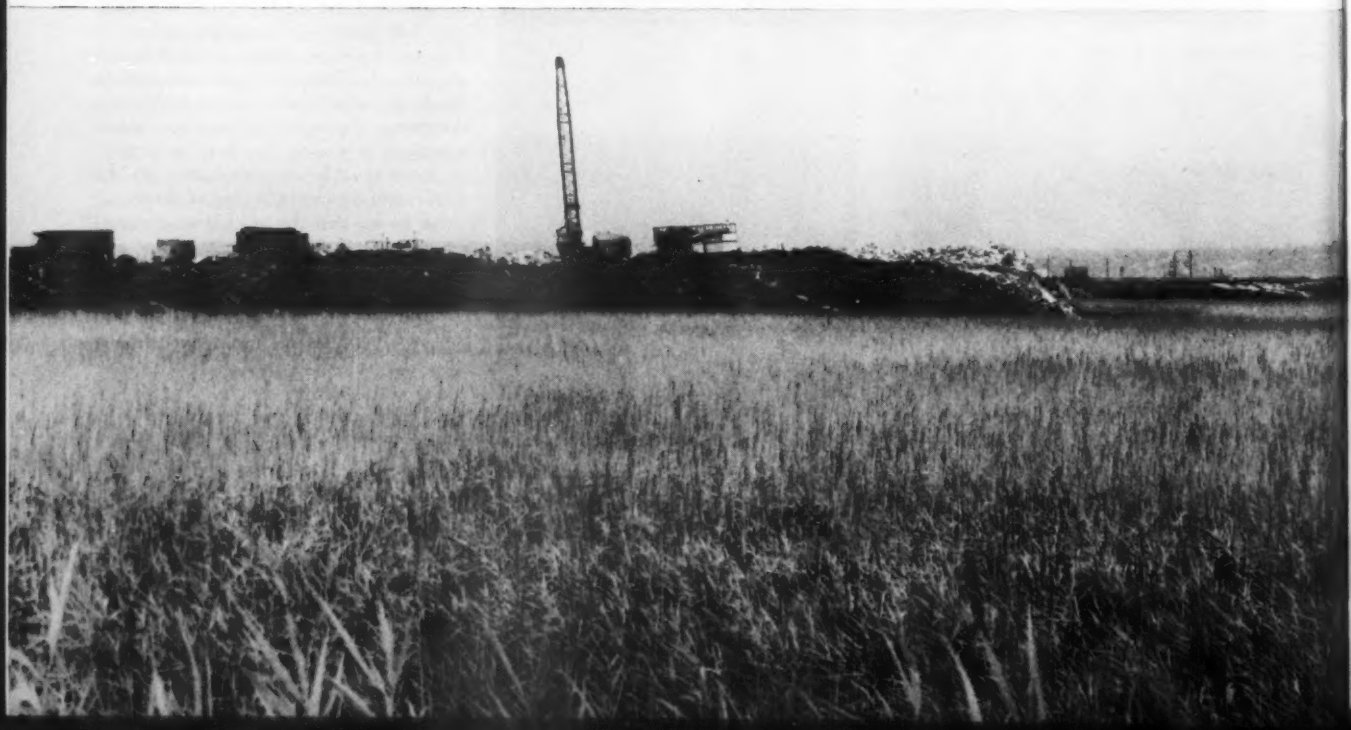
Figure 7 shows a lateral view of the right ear spread open widely. Notice that it occupies almost the entire side of the head. This view also shows a horizontal partition dividing the external ear cavity into two compartments. The upper compartment is blind on this side (right side) and the lower compartment connects with the inner ear. Just the reverse is true on the left side. This means that the two ears are not mirror images of each other and therefore the sounds recorded in each ear will be somewhat different. Mr. Pumphrey says: "So far as known, the outer ears of owls are the only ones that are asymmetrical." These special features probably make it possible for the owl to determine the position of the source of sound still more accurately. Mr. Pumphrey also found that birds are sensitive to both low-pitch and high-pitch sounds because of the structure of the inner ear. The inner ear canal or cochlea of owls is exceptionally long and therefore receptive to a wide range of sounds. From these findings it is obvious that the auditory equipment of the long-eared owl is highly developed and specialized. They are well equipped to locate the source of a sound with great exactness, whether it be the high-pitched squeak of a mouse, the snap of a twig, or some low-pitched sound such as the footfalls of a running mouse or shrew.

So, we see that the owl has exceptional equipment for flight, for capturing and killing its prey, for sight, and for hearing. These capabilities of the owl, remarkable as they are, do not exhaust the bird's versatility in its role of predator on mice, shrews, moles, and other small creatures, even though they are quite well concealed in almost total darkness.

In the case of the owl, we have indicated something of the marvelous capabilities endowed by Nature to creatures of the wild; senses so acute, in comparison to those of humans, that it's apparent we have little to boast about except our nervous system.

Our Changing Shoreline

Marshland giving way to industry, above; and to garbage dump, below



by Dr. Alfred Perlmutter, *Senior Aquatic Biologist, N.Y.S. Conservation Department*

ALL along our coast, especially in centers of dense population such as Long Island, the once sparsely settled marshland and bay shores have become areas of extensive building and development activities. Where formerly the occasional home of the squatter or commercial fisherman stood, there is now row after row of homes. Where once we found miles of natural sedge bank and beach, we are now confronted by elaborate bulkheads. Tied to these bulkheads and floating on newly-dredged channels are the family boats powered by high horsepower engines. In addition, extensive marinas have been and continue to be developed to provide for dockage of private boats whose owners do not live adjacent to the water, for boats of cruising tourists and for fleets of boats for hire in the sports fisheries. Bridges and roads are being constructed, new channels dug or existing ones deepened and widened, to provide better access to the water.

At first glance it would appear that these changes would be of most interest to the political scientist, sociologist, economist or local historian. Why should the fishery biologist and conservationist be concerned? The answer to this question is to be found in the value of the marine fisheries to all our people and the relationship of these fisheries to the shoreline regions.

Our commercial and sport fisheries of the Marine District take more than 50 species of fishes and at least 13 species of shellfish. While the total value of the fisheries resource is unknown, some figures are available on our commercial fisheries. In 1958, for example, about 96 million pounds of seafood from our marine waters were landed for which the commercial fishermen received close to eight million dollars. However, we do not know the additional value accruing to the community from service and maintenance of the commercial fisheries, nor for their processing and handling at the wholesale and retail levels. Even less is known about the value of the sport fisheries. It has been found that more than 600.000 people engage in the sport fisheries in New York's marine waters each year. No figures are available on the value of their catch nor on the money spent on fishing gear and boats, transportation, food and lodging and other items of expenditure of importance to the economy of the area. And who can place a price on the recreational value of the sport fishery which enables the harried urbanite to escape to Nature from his usual daily grind?

Even the incomplete information on the value of our marine fisheries indicates that they represent a tremendous natural resource worthy of preservation. Anything, therefore, that may damage them is of concern to the fishery biologist. The changes in our marshlands and bay shores now taking place are a potential threat to our supply of marine fishes and other aquatic animals. To understand why this is so let us examine the shoreline area and its inhabitants and their relationship to the coastal populations of fishes.

Estuarine Region

The shoreline marshlands and bay shores are part of our so-called "estuarine region." This is a term used by aquatic biologists to describe the complex of marshlands, bays and river mouths along the coasts. Within this estuarine region are found the most fertile waters of the sea. Into it chemical salts are drained off the land after rains or are carried continuously by surface and underwater streams and rivers. Decaying marsh vegetation adds additional chemicals including essential vitamins. These materials nourish the abundant plant life characteristic of the estuarine environment. Here the microscopic plants, the phytoplankton, are so numerous as to often color the water yellow, green or brown. The seaweeds — green, red and brown algaes—grow in profusion as do the higher types of marine plant life such as the sedges and eel grass which frequently emerge as islands at low water only to vanish with the rising tide.

All of the plant life in turn serves as food for the varied animal life. The microscopic plants are eaten by the microscopic animals, the zooplankton, which also feed on one another. In turn both the microscopic plants and animals are eaten by young crustaceans and fishes and by jellyfish, sponges, shellfish and some of the larger crustaceans and fishes. Finally, these animals are devoured by the larger flesh-eating invertebrates (animals without backbones) and by fishes. The algae and higher plants are the food of many kinds of shellfish and crustaceans and of plant-eating fishes. They also furnish shelter and breed-space for various aquatic animals.

So there is an abundance of plant and animal life in the estuarine environment! The eggs, young and adult stages of many species are numerous and a wealth of food is present. What does this have to do with our fisheries? A day in the field would answer this question, so why not go along with us on a cruise in our research vessel, "The Emmeline M." Our first stop, which we shall call Station 1, is at the southeast corner of Great Peconic Bay. A net is being readied to sample the eggs and newly-hatched young fish together with the other small animal and plant life which serves as their food. A conical net of fine silk bolting cloth, 19½ inches at the mouth and 6½ feet long is sewed to a brass ring and attached by a triple bridle to a weighted line about two feet above the weight. The net is lowered to the bottom and the vessel steams slowly ahead towing the net in the bottom layer of water. This continues for two minutes at which time the net is raised to a higher level of water and another two-minute tow is made. By this method, over a ten minute-period, five two-minute tows are made through each of five layers of water between the bottom and water surface. The contents of the net are emptied into a jar. In this tow we take one pint of a swarming mass of small plants and animals (plankton). We cannot help thinking how much more life is present here than in the ocean waters off Montauk, where only yesterday a ten-minute tow of the same net yielded but a few ounces of plankton.

Plankton Check

Now let us return to the laboratory where we have facilities to examine our plankton catch under the microscope. Here we can identify the eggs of many of the important commercial and recreational fishes. Among them are the eggs of the porgy, butterfish, mackerel, weakfish, blackfish and kingfish. Newly-hatched young of these species are found as well as the young of the blowfish and winter flounder. Also common are the eggs and newly-hatched young of the forage fishes, food of larger, carnivorous fishes—the anchovy, spearing and menhaden, the latter being also the main source of fish meal and oil in our Atlantic coast commercial fisheries and "chum" in the sport fisheries for tuna, bluefish and fluke. The remainder of the plankton consists of young and adults of many species of shellfish, worms and crustaceans.

But returning to the boat once more, the young fish trawl is now being lowered. It is a miniature model of the commercial otter trawl with small-meshed netting and is designed to capture the larger sizes of young fish which have settled to the bottom. The net is towed for 20 minutes and comes on board with

an interesting cargo. Here are some winter flounders 2 to 3 inches long; a series of kingfish, all less than 4 inches; porgies 2 to 3 inches in length; inch long blowfish and blackfish; small menhaden and herrings; and a miscellaneous assortment of invertebrates including blue crabs, spider and oyster crabs, sand and grass shrimp entangled in a mass of seaweeds, sea squirts and sponges.

We now take leave of the research boat and head for shore in the small seine boat. As we glide along in the shallow waters near shore we note the numerous siphon holes of the clams in the sandy bottom and the small, newly-set bay scallops attached to the strands of the eel grass. Along the sedge banks bordering the land, clumps of large ribbed mussels are visible. The beach seine is made ready and then hauled along the shore. Again a wide variety of fishes and invertebrates are caught. Young of all the species of fishes taken by the other gears are in the seine but other species are now taken for the first time. Here are some striped killifish, the sides of the male with vertical black bars and of the female with horizontal black stripes, the latter often mis-identified as the young of the striped bass. There are numerous common killifish, a favorite fluke bait; pipefishes, close relatives of the seahorses (like them the males carry the eggs and developing young in special brood pouches); stickelbacks; gobies; and some southern stragglers—mullets, jacks, spiny boxfish, pompano and a single trumpet fish. A large school of spearing in spawning condition has been captured. The net is filled with their sticky eggs and clumps of these eggs are visible on the bases of the sedges.

But there is no need to go further. Our day's outing has clearly shown that the estuarine environment is filled with the young of many of our commercial and recreational fishes, forage fishes, commercial shellfishes and a rich supply of food organisms. It also explains why there is usually good fishing within the estuarine region. For here, attracted by the abundant food supply both for themselves and their young, come the schools of such fishes as the striped bass, weakfish, porgy, bluefish, fluke and menhaden which are among the most important species in our fisheries.

It is quite obvious that any changes that might adversely affect the estuarine region will affect the fisheries. Actually, such changes have been taking place for many years, not only on Long Island but also along the entire coastline of the United States. Construction of impassible dams on coastal rivers, coupled with pollution of these rivers, has reduced the population of shad and Atlantic salmon, species which must run up river from the sea to spawn. Increased use of newly-developed insecticides is reportedly killing much of the marine life in certain areas. But these activities in the estuarine environment, detrimental as they may be to the fisheries, are not irreversible. Fish ladders and elevators can be built to get the ripe fish over the dam and to their spawning area and runs of fish can be restored. Pollution can be abated and insecticides developed or used in a manner not harmful to aquatic life. *More serious* are changes that affect the physical structure of the estuarine environment, such as dredging and filling operations, which are largely irreversible. In the past these

A bulldozer, in a few hours, can fill in a marsh that took millions of years to create

Signs of the times

operations were conducted on a relatively moderate scale. Some channels were dug, destroying in the process beds of shellfish and changing the circulation pattern of the water so that many of the forms of aquatic life originally present were reduced in number or disappeared. Some industrial sites were established on coastal marshes in the process of which all the marine life was buried under the fill pumped on the marshes to prepare the sites, and the character of the surrounding water changed to the extent that many common animals and plants became rare. But on the whole, these physical changes in the estuarine region were local and did not affect an appreciable portion of total region.

An automobile graveyard where once ducks nested

Within the past ten years, however, greater physical changes in our estuarine environment have been taking place than ever before. As described in our opening paragraph, the waters around us have been discovered by our urban populations. Following World War II, the population of New York City surged eastward into Nassau and Suffolk counties and the "commuter age" dawned. The vast majority of the commuters continued to work in New York City and therefore desirable sites for their homes were areas within easy commuting distance, mostly in western Nassau County. In these areas, favored lots were those away from the waterfront. As inland lots became too scarce and costly for extensive real estate development, houses were constructed in the waterfront area. At the start, people were reluctant to buy these homes, but as more and more were sold and the recreational and scenic advantages of waterfront property was recognized there was a burst of enthusiasm for such home sites. As a result, not only did waterfront building sites within easy commuting distance of New York City become desirable, but they became more valuable than inland sites. Further, all waterfront property, even as far as the eastern end of Long Island, became more valuable than much of the inland area. The reclamation of the "wasteland" along our shores for home and recreational sites continues at a furious pace. This phenomenon is being duplicated all along the coasts of the United States. In addition, changes accommodate growing industry.

At the accelerated pace that our estuarine environment is being changed by man's activities it is only a question of time until most of the natural estuarine environment will have been destroyed. What will be the effect on the fisheries? No one can be certain. But in view of the importance of the estuarine region as a spawning, nursery and feeding area for many of our important fishes and shellfishes, it is likely that the populations of these animals will be reduced or at the very least, fewer of them will live in the area. Either way it will mean poorer fishing. Consequently, fisheries scientists have recommended that areas of the estuarine region be set aside as natural reserves. Their recommendations have been endorsed by biologists in other branches of conservation, particularly wildlife scientists, who find the estuarine region to be an important feeding and nursery area for waterfowl and many other aquatic birds. In New York State, a new "Wetlands Law" provides matching funds, making it possible for the State to assist the towns and counties in preservation of the estuarine region in its natural condition.

Keelboats

by William L. Wessels

ONE of the earliest types of river boats that followed the canoe during Colonial days in this country was used by the pioneers on the Connecticut, Mohawk and Delaware rivers. These boats were known by a variety of names but keelboat, poleboat and batteaux were the most commonly used. They were made and adapted for streams where the water was shallow and rapid.

These unique river boats were made of planks hewed from the abundant white pine which was light and tough and were especially well adapted for navigating the shallows and rapids of our rivers. Even when heavily loaded, the boat was serviceable in less than a foot of water.

Keelboats were flat-bottomed, double-enders; i.e., pointed at both ends. The smaller ones were from 20 to 30 feet long, some two to three feet deep with a beam of three to five feet. Some, though, were considerably larger—40 to 75 feet long with a seven- to nine-foot beam, and they carried a mast and sail. The name "keelboat" was derived from the heavy, white pine timber constituting the keel and extending from stem to stern. This keel strengthened and stabilized the craft, while serving to take the shock of collision with any submerged obstruction.

Such a boat was navigated down stream by means of sweeps or oars but going back upstream, especially against a swift current, was a different matter. The crew, exclusive of the steersman, consisted of four or eight men, according to the size of the craft, and each man was armed with a long, stout pole made of ash or hickory, with a wrought iron spike at one end. There were two methods of propulsion. With an equal number of men standing on each side of the boat, as near the bow as possible and facing the stern, they would plant their spikes in the bottom of the stream at an angle. Then, with the upper end of each man's pole against his shoulder, they would walk as far towards the stern as possible, moving back and forth on narrow wooden runways, about ten inches wide, built along the gunnels of the boat for that purpose. By so doing, they pushed the boat under their feet in an upstream direction and propelled it with each repetition of the process nearly a boat's length. Two men would hold the distance gained until the others hurried back to the bow and planted poles in the bottom again. The second method of advancing consisted in facing the bow of the boat with workers in two stationary groups, one near the bow and one near the stern. The groups would push on their poles alternately, with the helmsman to correct the zig-zag impulse. The labor necessary for ascending the rapid river by either of these methods was so great as to be beyond exaggeration, yet it was accomplished over long distances such as from Cohoes or Schenectady to Utica on the Mohawk River and, for many years, was the method used to transport heavy cargoes. When the riverbank terrain permitted, it was often the custom to make use of mules or horses for towing these craft. The larger keelboats also made use of sail when the wind was favorable.

On the Mohawk River, these keelboats came to be known simply as Mohawk boats; occasionally, Schenectady boats. They played an important role in the Colonial days and during the American Revolution for shipping supplies from Schenectady to Amsterdam (then Fort Johnson) and Rome and from Albany to Fort Edward to supply the troops at Fort Ticonderoga.

On the Delaware River, a variation of the keelboat, shaped much like an Indian canoe, was developed about 1750 by one Robert Durham of Pennsylvania. The Durham boat, as it was called, was some 60 feet long with an eight-foot beam and drew, when fully laden to its capacity of 15 tons, about 20 inches of water. The sharply pointed bow and stern of the Durham boat were decked over, while a running board extended the length of the boat on each side. They carried a mast and two sails and were manned with a crew of five men, one steering and four pushing forward with setting poles, two on each side.

The journals of travelers during the Colonial days frequently make mention of these early keelboats. One such was Christopher Shultz, a European, who described a trip that he made from New York to Pittsburgh in the early 1800's, as follows:

New York to Albany, 160 miles, by steamboat, 1½ days
Albany to Schenectady, 15 miles, turnpike, 1 day
Schenectady to Utica, 104 miles, 5 ton keelboat, 5 days
Utica to Oswego, 104 miles, 5 ton keelboat, 3 days
Oswego to Lewiston, 172 miles, lake sailing vessel, 3 days
Lewiston to Black Rock, 17 miles, mud road, 1½ days
Black Rock to Presque Isle, 90 miles, lake sailing vessel, 2 days
Presque Isle to Le Boeuf, 14 miles, turnpike, 1 day
Le Boeuf to Pittsburgh, 240 miles, 10 ton keelboat, 5 days
Total of 916 miles, 23½ days.

The Story of Archery

An Age-old Weapon Enjoys a Great Revival

by H. Wayne Trimm

SOMEWHERE in the misty prehistoric days archery was born, a development that might be compared, in its effect on civilization, with the advent of the wheel, the use of fire and the invention of writing. The leverage principle of the bow and arrow, with its ability to inflict injury at long range, raised early man above the stone and stick throwing primates. Conservative estimates put its invention at least 10,000 years ago, although some archaeologists believe it may have been as much as 30,000 years. Cave drawings, believed to be 10,000 years old, show the bow being used on caribou or some similar species. However long ago it was, no other weapon has been used so extensively in the wars which have shaped the course of civilization.

Survival of early man might well have been decided by the bow and arrow. As human population grew and societies developed, demand for food and protection grew apace. Need for goods and desirable possessions, such as wives, often led to armed attacks on neighboring tribes. Superior archers survived and claimed their trophies. Sometimes a lucky girl could look at the head of her former husband decorating the wall of her new home and dream fond memories.

As individual families found strength in banding together into communities, soon communities found similar advantages in establishing nations. The most skilled, strongest and most venturesome archers became the army. In some instances, national leaders were skilled archers. Egyptian Pharaoh Amenhotep II, son of Thutmose III was reputed to be the greatest archer of all time, shooting arrows completely through thick copper targets while riding by in speeding chariot. King Ashurbanipal was a great Assyrian bowhunter, according to perfectly preserved reliefs which show him hunting lions and bulls from his chariot. The Asian peoples, the Chinese, Hittites, Israelites and particularly the Persians were excellent archers. The people of Europe soon learned the potential of the bow and arrow in the hands of the Huns and Turks. Many a Crusader, including Richard the Lion Hearted, fell to Turkish arrows. The Greeks and Romans knew the bow too, but usually as its victims. Occasionally they hired troops of archers but not in sufficient numbers to turn the tide of battle. Later, they adopted the bow and the Legions were armed with it.

While the bow was developing in Asia and Europe, peoples in other remote sections of the earth were also using it, including isolated tribes in North and South America, Africa and Australia. Whether this was a result of knowledge spread from a single source or whether it was a case of parallel development is not known.

The history of archery in England apparently began with the Saxons who used pine and yew bows and four-fletched (four-feathered) barreled (thicker in the middle than at the end) arrows. About the same time, roughly 850 to 950 AD., the Danes and the Norsemen, who were known as the Vikings, brought archery to England as they captured and controlled most of the Island. The Vikings were finally defeated by the Saxons in 1066 at Stamford Bridge. At the Battle of Hastings the same year, the invading Normans won by shooting their arrows in the air in the manner of mortar fire so that the arrows dropped behind the protecting shields of the Saxons.

By 1300 the English longbow had been perfected and every male was required to own and to practice with the bow and arrow. This was about the time the Patron Saint of archery became known: The real or mythical (historians can't agree) Robin Hood. English archers, shooting 70-100 pound bows tested their skill in battle against the Scots (derived from *sciot*, meaning archer) then turned to France and the Hundred Years War. There the longbow proved itself superior to the slower, clumsier crossbow. In spite of this, the crossbow gained popularity, since it required less skill and muscle to use it efficiently. By the end of the Hundred Years War, it and the gun were bringing the curtain down on the dominance of the longbow as a weapon of war. By 1600, archery was relegated to role of a lawn sport followed by only a small number of people.

Strangely enough, American archery did not develop from the American Indian who had used the bow and arrow for hunting and, when pressed, in war. It was a group of Philadelphia socialites who, in 1828, brought the sport from England. With an assist from Confederate veterans Will and Maurice Thompson, who lived and hunted with Indians in Florida and who jointly wrote "The Witchery of Archery," popularity of the sport increased for a period, then nearly died out. Then one day in 1911, a California doctor named Saxton Pope was given the care of a sick Yani Indian called Ishi. The doctor became interested in Ishi's skill in archery which the Indian taught him. Later Dr. Pope went bow hunting with Ishi and, following the Indian's death, continued big-game hunting with another enthusiast, Art Young. Together they hunted in America. Later, Young bow hunted in Alaska and Africa. Pope's book, "Hunting With the Bow and Arrow," plus films taken on their trips, stimulated interest in this country in bowhunting and archery.

In 1934 a group of target archers set up a simple field course with tin can targets. Refinement of this idea led to the use of hay or straw bales for targets and a specific set of rules for competition. The National Field Archery Association was started.

Field Archery

Just what is a field archery course? The basic unit is 14 targets, although there may be multiples of this number; i.e., 28, 56, etc. Targets are usually tightly packed bales of hay or straw set out in woods and fields to simulate hunting situations. To be approved by the National Field Archery Association, a course must meet certain safety requirements and shooting positions for various targets, usually marked by stakes or posts, must be at prescribed distances, varying from 20 feet to 80 yards. For official shoots, the target faces must be of specific size and description on particular targets. An official field round uses targets with a wide black outer ring which is scored as 3 on each hit, and an inner white area with a black bull scored as 5 for each hit. On the field round, four arrows are shot at each target. A perfect score for 14 targets is 20 points on each for a total of 280. The hunters' round, another officially approved variation, uses a black target with a white center spot. Scoring rings are marked on the black target in pencil and are invisible from shooting position. Targets are scored the same as for the field round but the shooting positions differ, usually being closer. A third type of official round is known as the broadhead or big game round. Targets are colored pictures of animals, usually game species, with vital areas marked off for high scores and the body line, exclusive of hair line, legs, antlers, ears, etc., as the lower scoring area. In this competition there are three stakes or shooting positions. If a hit is made from the first and most distant stake, no more arrows are shot. If the archer misses, he moves to the next stake and shoots again. If he misses here, he moves on to the third and closest position. Only one arrow scores on each target in this round, its value depending on the position from which it was shot. This, basically, is field archery. It is a good competitive sport in itself and, in addition, good practice for hunting.

Bowhunting

Hunting small game is a great challenge for the bowhunter. The woodchuck, with no closed season in New York, provides some of the best sport. Our ground hog is a smart one, very wary, presents a small target and is difficult to stalk. A 'chuck, taken by bow and arrow, is a worthy trophy for any archer. Rabbits, during the regular small game season, come in for their share of bowhunting too.

Rough fish may be taken by bow and arrow in most non-trout waters of the State (write the Conservation Department for spearing order), and this has elevated the lowly carp into seasonal prominence as a game fish, since thousands are taken every Spring in shoal, spawning areas. Besides being sporty this is good conservation practice. A fishing license, a small game license or a combination license is required.

A successful and happy bowhunter

But shooting at carp, woodchucks and rabbits is just marking time for the bowhunter; keeping his shooting eye sharp for the main event, the annual big game season. Here in New York, big game for gunner and bowhunter alike, means the white-tailed deer, with a nod to the black bear as a runner up.

It was not always thus for the archer. Although the Conservation Law has long classed the longbow as a legal big game weapon, only a few fanatics used it in the years when they had to compete with gunners during the buck-only season.

But in 1948 a great day dawned for the bowhunter in New York. In that year the Conservation Law was amended to provide for the issuance of a special archery license and the establishment of a short archery season prior to the regular big game season. During the archery season, holders of the special archery license were permitted to take one deer, either a buck or a doe. It was just the spark that was needed to kindle interest in this rejuvinated sport. Although the special archery license sold at a premium rate (advocated by the sponsors of the archery season legislation—the New York Field Archers' Association), big game bowhunters appeared as if by magic. Many first-timers leaped at this chance to bag a deer this new "easy" way. Old hands could have told them it wouldn't be such a cinch; that the average bow and arrow deer is taken at ranges less than 30 yards;

that they would have to hunt the wily whitetail as they had never hunted before; that there must be some basis for the statistics which show that only one in twenty bowhunters is successful in taking a deer vs an average of about one in ten for gunners.

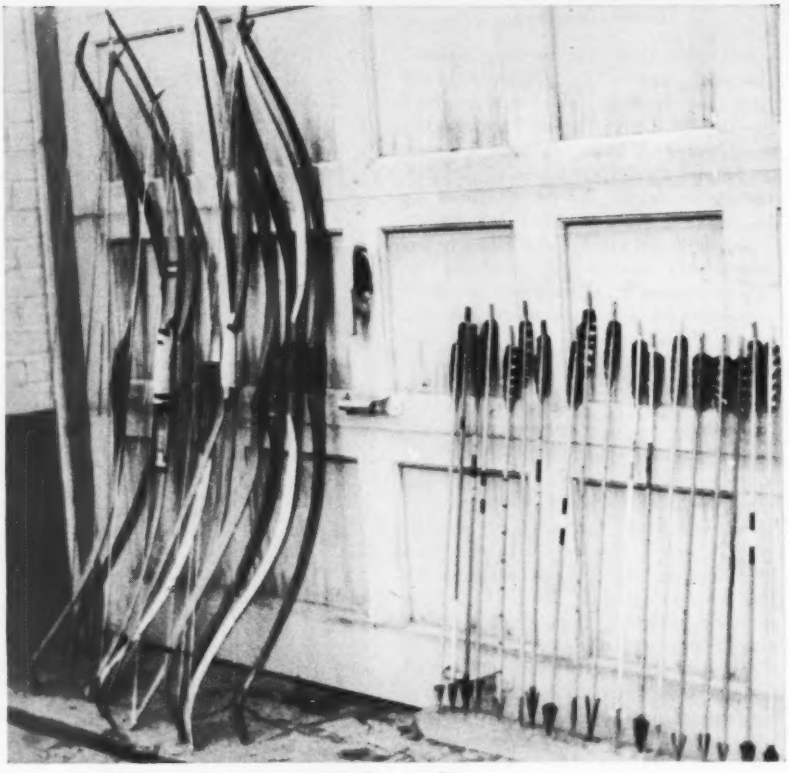
Surprisingly, these long odds and the exacting demands of the hunt haven't dampened enthusiasm. Archery license sales have climbed from 853 in 1948 to 25,166 last year. We can speculate that this may be attributed partly to the challenge posed by this mode of hunting but even more important, we think, is the quiet serenity experienced by the archer as he stalks his deer in the silence of the pre-gunning season woodlands.

Nor is this the only bonus. The Conservation Department recognizes archery seasons as a means of providing greater hunting opportunity generally and particularly in heavily populated sections of the State where the use of firearms is considered too dangerous.

Right here, in our account of the resurgence in popularity of archery in New York, we want to take time out for a bow to the one man most responsible—Dr. Paul Crouch of Oxford, New York. As a leader in the New York Field Archers' Association, his tireless efforts were largely responsible for the approval of the special archery season in 1948.

Early in the game, archery hunting came in for considerable criticism. Opposition came, in part, from those against the killing of deer by any means; people who have been unable to grasp that an excess of deer—or any other species of game—must be viewed as a crop to be harvested to the benefit of man; not permitted to be wasted through malnutrition—even starvation—to the detriment of the herd and to their range.

Opposition was voiced, too, by some misguided people who were led to believe that the modern bow and the broadhead arrow was a puny weapon; that deer were left to roam in misery with arrows sticking out of them—animated pin-cushions, according to some wild-eyed reports. Truth is, the properly designed and honed broadhead is most effective, maiming no more deer than the more conventional gun. Studies made in various parts of the country indicate that the percentage of wounded deer lost by archers is about the same as that for gunhunters. The records prove that it only takes one sharp, well-placed arrow to kill a deer, quickly and humanely. Moreover, because an arrow kills by cutting, a superficial wound tends to heal. What it boils down to is this: Any weapon is as efficient as the person who uses it!



Archery tackle

Basically, a bow is the essence of simplicity, a relatively stiff, though flexible piece of material, the ends of which are connected by a string. When this string is pulled it exerts pressure on the bow, bending it into an arc. Upon release of the string, the energy of the bent bow is transmitted to the arrow, propelling it through the air. In the beginning, the bow was little more than a stick of wood with a rawhide or vine-fiber string. When wood was not available, other materials were used. Ancient Turks used buffalo horn and northern Indians used horns of the musk-ox. So good were the old Turkish bows that they still hold the world's record for distance with a shot of 974 yards. Modern archers are still trying to beat that one. *(Ed. note: They are coming close. This year at the 75th National Archery Tournament at Lancaster, Pennsylvania, Dan Lamore of Porterville, California, using a 54-inch, 250-pound, laminated bow fired a 25-inch arrow the awesome distance of 937.13 yards.)*

In general, however, modern archery tackle is superior in most respects to that of even a few years ago. Most bows are now made of laminations of wood and fiber glass securely glued together. Such bows are fast, strong and resistant to temperature changes; all important features in a hunting bow.

Over the centuries, bows have had many shapes; the lopsided bow of the formal Japanese archer with its long upper limb; the English longbow with its flat back (the part of the bow farthest from the archer) and round belly; the short, recurved, extremely fast, powerful Turkish bow; the short, powerful but slow-shooting bow of the American Indian and the flat, recurved bow of today's archer.

Arrows have, traditionally, been made of wood and many modern archers still prefer this type, especially Port Orford cedar and compressed cedar. Also popular, though, is solid fiber glass (for fishing) hollow fiber glass and aluminum. The latter is the type of arrow used by most field archers and by a few bowhunters. Most bowhunters use wooden arrows but many are switching to hollow fiber glass instead.

Arrows carry from two to six or occasionally more feathers or fletchings. Purpose of these is to stabilize and straighten the arrow in its flight. Longbowmen of England used four-fletched arrows. Arrow-tips or "heads" come in a variety of shapes, sizes and weights. They may be rubber or metal blunts for small game, plastic whistling heads, hunting heads with two to six cutting edges or "shot-gun" type with tiny darts that are propelled from a shallow con-

tainer. There is also the simple target or field head arrows. Bow strings are usually made of nylon or dacron although linen strings are sometimes used.

To guard the shooting fingers against blistering, a shooting tab or glove is worn. This also aids in smooth release of the bowstring, assuring better arrow flight. An arm guard protects the inner side of the bow arm from string-slap.

Quivers or other arrow-carrying devices come in a variety of designs. Some seem more decorative than functional. Many bowhunters use a bow-quiver which keeps a supply of arrows available to their fingertips. There is some tendency for these to throw the bow off balance, particularly if the bow is tipped a little.

Shooting the Bow

To shoot a bow correctly the archer should stand so he is facing 90 degrees away from the target. His feet should be spread comfortably apart, his heels lined up with the target which should be visible along the line of the left shoulder. (These instructions must be reversed for a left-handed person.) The bow is held firmly but not tightly in the left hand. The arrow is placed on the left side of the bow, slid back and nocked on the string with the ridge on the nock or odd-colored sight feather to the outside. The bow is drawn by simultaneously extending the bow arm and pulling back on the string with the first three fingers of the shooting hand. The arrow is held against the string between the first and second finger, slightly above the right angle mark on the string. The shooting hand must come to rest in the same place each time before the fingers relax to release the arrow. This is known as the "anchor point." A commonly adopted, "natural" anchor point is the first finger at the right corner of the mouth.

When the arrow is released, the hand should remain at anchor point or slide smoothly back along the side of the face. The arrow is released by relaxing the fingers while at the same time applying more pressure on the muscles of back and shoulders to hold the hand in position. The bow arm remains in position even after the arrow has left the bow. Wait until the arrow hits before lowering the bow arm. This is the follow-through in archery and failure to do this one simple thing is one of the major errors in the sport. Even the slightest drop of the bow before the arrow has cleared it will be reflected at the target. It is a normal tendency to lower your bow so you can watch the flight of the arrow. Don't do it! Remember, too, that the arrow must be drawn to the same spot and the same distance each time. The release must be smooth.

If these procedures are followed the archer needs simply to learn where to aim to hit targets at varying distances. An arrow travels in an arc. At close range it is necessary to aim below the target. As the archer moves back he will find one distance that is point-blank range. This distance, often between 30 to 70 yards, should be remembered since it will give the shooter some way of checking his errors. Beyond point-blank range, the arrow is aimed higher than the spot that should be hit.

Tips on Bowhunting

Bowhunting, because of limited effective range of the weapon, requires that the hunter be fairly close to his prey. As noted previously, the average distance at which deer are killed by bow and arrow in this State is less than thirty yards. To get this close an archer must use all his skill and ingenuity. Aids are camouflage clothing; makeup to dull reflective quality of the face; soft-soled shoes; man-scent-killing deer lures; deer calls; rattling antlers; hunting blinds and tree stands.

Most important to remember is that noise and movement are easily detected by deer. An archer should select cover, such as a large tree or boulder, to stand beside. Either will serve to break his silhouette so that he may turn slowly without being seen. Ground around him should be cleared of dead leaves and sticks so the archer may move silently. In such situations I have had deer walk so close to me that I could feel the animal's warm breath.

An experienced archer will generally pass up a shot rather than make one which may only wound. Ideally, the deer should be standing broadside, less than thirty yards away and in the open. The most vital area of a deer, the chest cavity, measures about 10 x 12 inches—a small target even at close range. Kills, sometimes quick ones, are made by hits in other spots but the experienced archer hopes, and tries, for a good chest shot. The biggest error a novice bowhunter makes is shooting at the entire animal rather than picking a spot on that animal as a target. This results in shooting high, often over the animal.

After a hit, unless the deer goes down within sight of the archer, it is best to wait for at least twenty minutes, sometimes longer depending on the type of hit, before trailing the animal. Carefully lining up the spot where the deer was last seen and its direction of travel makes the search easier.

New York State has co-operated actively with the archery groups. A special archery season in gunning counties is augmented this year by two months of bowhunting in Westchester County where two deer may be taken. The State has encouraged field archery by building and maintaining a field course on the Connecticut Hill Game Managament Area. This is open to the public except for the period in the Fall when New York Field Archers hold the annual State championship shoot. It was here that the National Field Archery championship shoot was held in 1957. This year, archery instruction is included in the Junior Hunter Training Program. New York Field Archers have pledged active participation of their membership in training new archers. This will help the sport and insure safety afield as well.

Anyone interested in more information about bowhunting or field archery may contact the National Field Archery Association, 31419 U.S. Highway 99, Redlands, California; New York Field Archers, P.O. Box 189, Newark, New York; American Bowhunters' Association, P.O. Box 241, Lansing, Illinois. Publications on the market include *Archery*, published by N.F.A.A., *Bowhunting*, Riverwood, Maryland; *The Archer's Magazine*, the Archer's Publishing Co., Inc., P.O. Box 832, Norristown, Pa.; and *The National Bowhunter*, published by the American Bowhunters' Association.

Wood's edge target on typical field course

Popular Sporting Dogs

by A. W. Bromley

IF we had our way, no waterfowler or upland gunner would be afield without a good dog. Now, we realize that this is wishful thinking; that we can only educate rather than legislate adherence to this principle. But we do feel strongly that in these days of increasingly-heavy hunting pressure, shrinking game habitat and certainly no over-abundance of any waterfowl or upland game bird species, it is short-sighted and poor conservation to do otherwise. We can't afford to shoot down five million ducks each year in this country that we never recover. Nor can we afford any better the less publicized but nearly as heavy crippling loss of upland game birds.

This should weigh pretty heavily on our conscience, particularly when survey figures and experience demonstrate that we can cut these losses considerably by hunting with good dogs.

Not only that, we shall do ourselves a favor, in the bargain. Half of the fun of hunting waterfowl or upland game is in watching your dog work. The thrill and excitement they derive in the hunt is transmitted, undiluted, to the man with the gun and their obvious pride in a job well done is shared equally by their owners.

On the accompanying centerspread painting, H. Wayne Trimm has pictured many of today's most popular thoroughbreds in the sporting dog fraternity. Not all of the working dog breeds are shown by any means, but enough to indicate there is a wide choice available to any hunter, no matter what his waterfowl or upland hunting specialty may be. And, as we pointed out a few years ago in our CONSERVATIONIST article ("Gun Dogs and Conservation," October-November, 1955), you don't *have* to hunt a thoroughbred. Many a pooch of uncertain ancestry will hunt with zest and efficiency, bothered not one whit by his lack of A.K.C. recognition. So give yourself and the game the best break possible—hunt with a dog.

The Beagle

Here is the most popular sporting dog in America today—more being registered by the American Kennel Club than any other breed. This No. 1 position surprises hardly anyone, least of all those fortunate enough to own and hunt one of these merry little hounds.

Beagles come in two standard sizes; those that stand 13 inches or less, and a slightly larger edition, standing less than 15 inches. But big or little, they possess the same sunny disposition; come, usually, in black and white or rich brown and white; have the typical hound's unparalleled nose for the scent of game and that "never say die" spirit when on the trail.

Beagles are specialists on rabbits, putting up such a joyous clamor when on the trail that it's a question whether it's more fun to listen to the music or to bag the bunny. But they don't draw the line there and many an upland gunner will stack his beagle up against any other breed when it comes to routing a wily old cock pheasant out of heavy cover.

Then, just to cinch the popularity poll, the beagle returns from the hunt to take his sleek, well-mannered place with the family; a perfect pet for children.

We predict, on pretty safe odds, that the beagle will long wear the crown—most popular dog in America.

The Pointer

Taking his name from his great instinct to stand game staunchly and to point, here is a great hunting dog breed—probably rating No. 1 in popularity among upland game bird men, and certainly in the top slot in the upland field trial circuit.

The pointer is an immigrant to this country from England and to England, much earlier, from Spain. In the course of his travels and development, the breed is said to have benefited by infusions of bloodhound and greyhound plus a good strong dose of foxhound. The modern-day result is a shorthaired, well-proportioned dog of tremendous speed and endurance. Guiding all this fine machinery of the hunt is a first class intelligence and a nose for game that his hound ancestry could well be proud of.

In the fast-going quail country of the South where men, horses and dogs combine their talents, the pointer is king. And on pheasant here in the North and West, it's a revelation to watch a pair of well-trained pointers sweep through corn and grain stubble, overgrown hay fields and swale, graceful as low-flying gulls, skidding to a rigid point where a smart old cock bird crouches in hiding.

If you like your upland dogs fast and rangy, enduring and intelligent, you won't go wrong with a good pointer.

German Shorthaired Pointer

If there is one dog, of all the pointers, designed specifically for the grouse hunter the German shorthair is it.

This breed, with a German background, as the name suggests, runs a bit larger and heavier boned than their English counterparts, perhaps accounted for by a bit more bloodhound in their family tree. Perhaps because of that, too, they are somewhat more methodical as field dogs. This is a characteristic, coupled with dependable pointing instinct, exceptional nose and natural retrieving ability that makes them hard to beat on grouse. Nor should you be surprised, as the owner of a good grouse dog of this breed, to find that, as an added bonus, you also have a pretty fair duck dog. German shorthaired pointers generally take to the water well and their retrieving ability and great nose is a game-saver in the duck marsh.

The English Setter

Here is an old-line aristocrat, an upland game bird stylist that's hard to beat for brains, beauty and grace of movement in the field.

Developed in England, no one can say how long ago, the English setter is thought to have been bred up from the spaniel. A variety of strains are recognized, the most popular in America being the Llewellyn—either the "pure quill," which is rare nowadays, or dilutions through out-breeding called grades.

English setters are medium-size dogs, predominantly white, marked or ticked with darker splotches or flecks of black, brown, buff or creamy-orange. Their long-haired coats are smooth and silky and they boast, when in prime regalia, fine "feathers" on legs and tail.

This is the original upland bird dog in America and, although not as popular today, particularly for field trial competition, as the pointer, the setter will hold its own as a fine hunting dog. The breed is particularly good on grouse where a slower moving, brainy dog with a good nose is greatly to be preferred over faster, wider-ranging breeds—at least by those who enjoy seeing the dog work and having a shot at the bird.

The Irish Setter

Here is the flashiest setter of them all and that has been his undoing, at least as an upland hunting dog. There seems no doubt that the hunting instincts of the breed have been dulled by breeding for show and bench competition.

It's easy to see why the breed long ago attracted the attention of bench dog fanciers. Their chestnut-red coat and rangy, yet aristocratic conformation, were natural attributes. As a consequence, they

were bred to accentuate these characteristics rather than for brains and "nose." Moreover, the "Irishman" retains some of his original difficult traits including a mind strong to the point of bull-headedness and a great yen to wander.

Yet all is not lost for there are hunting dog men dedicated to the redemption of the breed and enough of the old-time "Irish" blood remains to attain their goal. It's worth doing for it's a thrill to watch the stylish, almost swaggering, big-gaited approach of a well trained Irish setter to the job of hunting upland game.

The Gordon Setter

The Gordon setter, these days, is pretty much of an also-ran; well behind the English and even the Irish setter in popularity for upland bird hunting or for field trial work.

Nevertheless, his good conformation and black and tan coat make the Gordon a handsome dog. Add to this his good nose, tractability and proficiency at land or water retrieves and you have a breed that deserves a place in the sporting dog picture.

The Retrievers

Here is a group of dogs that should be given a gold pin by the fraternity of conservationists. It's a pretty safe bet that retrievers, collectively, have saved and brought to bag more crippled waterfowl and upland game birds, as well, than all the other sporting breeds combined, with the possible exception, upland, of the spaniels.

To begin with, the retrievers are all around field dogs, revelling in the hunt no matter for what and equipped with unexcelled noses for the purpose. Generally, too, they are fine pets, good with children and excellent insurance around the house should strangers become too inquisitive. But these attributes are, of course, icing on the cake for retrievers are designed for waterfowl hunting and may the pattern never be flawed or lost. It couldn't be better! Moreover, you can take your pick from three retriever breeds leading in popularity, plus two others if the leaders don't suit your fancy.

The Chesapeake Bay Retriever

This broad-chested, big-boned dog is built somewhat on the order of a Sherman tank and has approximately the same degree of imperviousness and endurance. Add to that, great intelligence, the nose of his part-hound ancestry plus unbounded courage and you have the Chesapeake Bay retriever.

This breed has one other distinction, the only retriever breed in this country of American origin. The Chesapeake takes his name from the locale of his reputed ancestral development as the progeny of a cross between a couple of derelict puppies from a wrecked English brig and some yellow and tan coonhounds, native to the Maryland coastal country. The result we have described, needing only to add that the Chesapeake Bay retriever, because of his tightly-kinked, oily coat, is practically waterproof and that their weights are in the 70- to 80-pound class.

The Labrador Retriever

Chesapeakes held the retriever "centerring" for many years but "Labs" have come on fast in recent years and are now the hands-down favorite of the retriever group. They are straight or somewhat wavy-coated dogs, running slightly smaller and lighter, generally, than the Chesapeakes, and solid black or creamy-blond in color.

Their great popularity is earned. They are fast, sure retrievers with such grace in the water they remind one of an overgrown otter. Moreover, the Labrador has remarkable intelligence combined with a wonderful disposition; a union of characteristics that endears the breed to the trainer and handler, whether in the duck marsh or competing in field trials.

The Golden Retriever

Definitely the most handsome of all retrievers, the Golden owes its beautiful coat to ancestral Caucasian sheepdogs. Somewhere along the line, bloodhounds got into the act, much to the subsequent advantage of the Golden retriever as a hunting dog.

These are big dogs, going 70 pounds or more and well insulated, beneath their silky, golden-haired outercoat, with a dense, oily undercoat. Goldens are not infrequently hunted on upland game and they give a very good account of themselves.

The Flat-Coated Retriever and the Curly-Coated Retriever

Neither of these breeds have ever hit the "big-time" here in America. Neither is noted for outsanding speed or "class," yet both will do a workmanlike job on the marshes. Their names are descriptive of their coat texture, with the flat-coated always jet black while the curly-coated may be black or a very dark brown.

The Weimaraner

This sleek, short-haired, beautifully proportioned, silvery-grey dog is, relatively, a newcomer to the hunting dog aristocracy in this country. Imported from Germany, where it was developed as an all-purpose hunting dog, the breed actually suffered from too much ballyhoo. The credulous were led to believe that here was a dog that could not only find game where other breeds failed but, in addition, would prepare breakfast and serve your coffee in bed. Sportsmen were naturally disillusioned when they found the coffee too strong.

Shorn of such nonsense, however, the weimaraner has made a place for himself as a first-class hunting dog and field trial competitor.

The Spaniels

Here is a group of dogs of medium-size whose middle name should be "HUNT," so enthusiastic and capable are all its members in the upland field. Generally speaking, the spaniels are fine-coated, short-bodied, close-working dogs possessed of a truly amazing nose which they propel on the trail with tremendous animation. They combine so many traits, including topnotch retrieving ability, dear to the hearts of the upland gunner, that they rightfully deserve their great popularity in this country.

The Cocker Spaniel

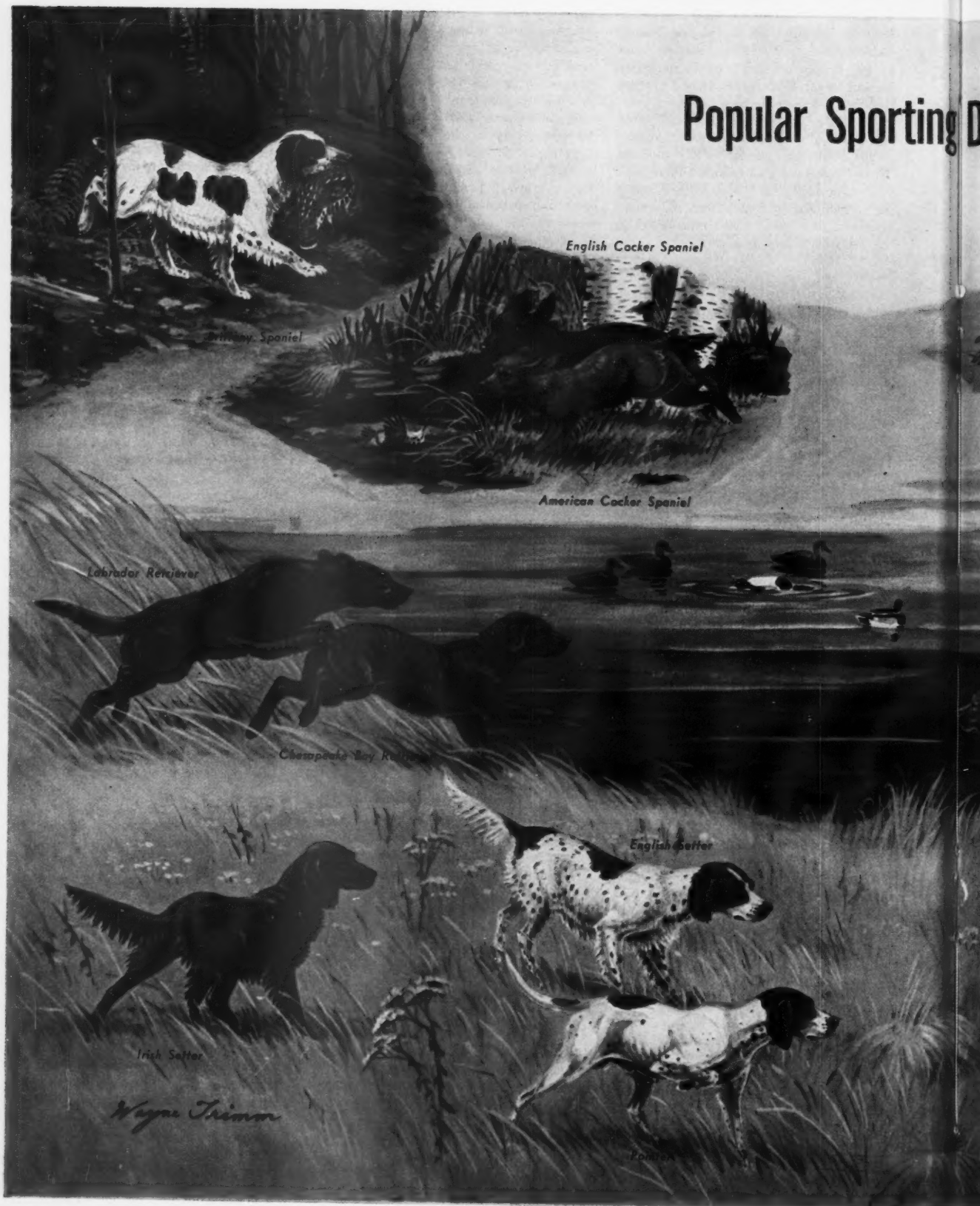
Until edged out, just a few years ago by the beagle, the cocker spaniel enjoyed top billing as the most popular breed in America. It earned this place with a combination of beauty, brains and hunting ability that made it equally at home in front of the fireplace or in the roughest kind of going afield.

Cockers come in two types—American and English. The American is the smaller and while a great little hunting dog, probably enjoys its greatest popularity on the show bench and as a family pet. The English cocker may not match its American cousin in good looks—he's larger and doesn't have so heavy a coat—but his bigger frame and longer legs put him ahead in the field.

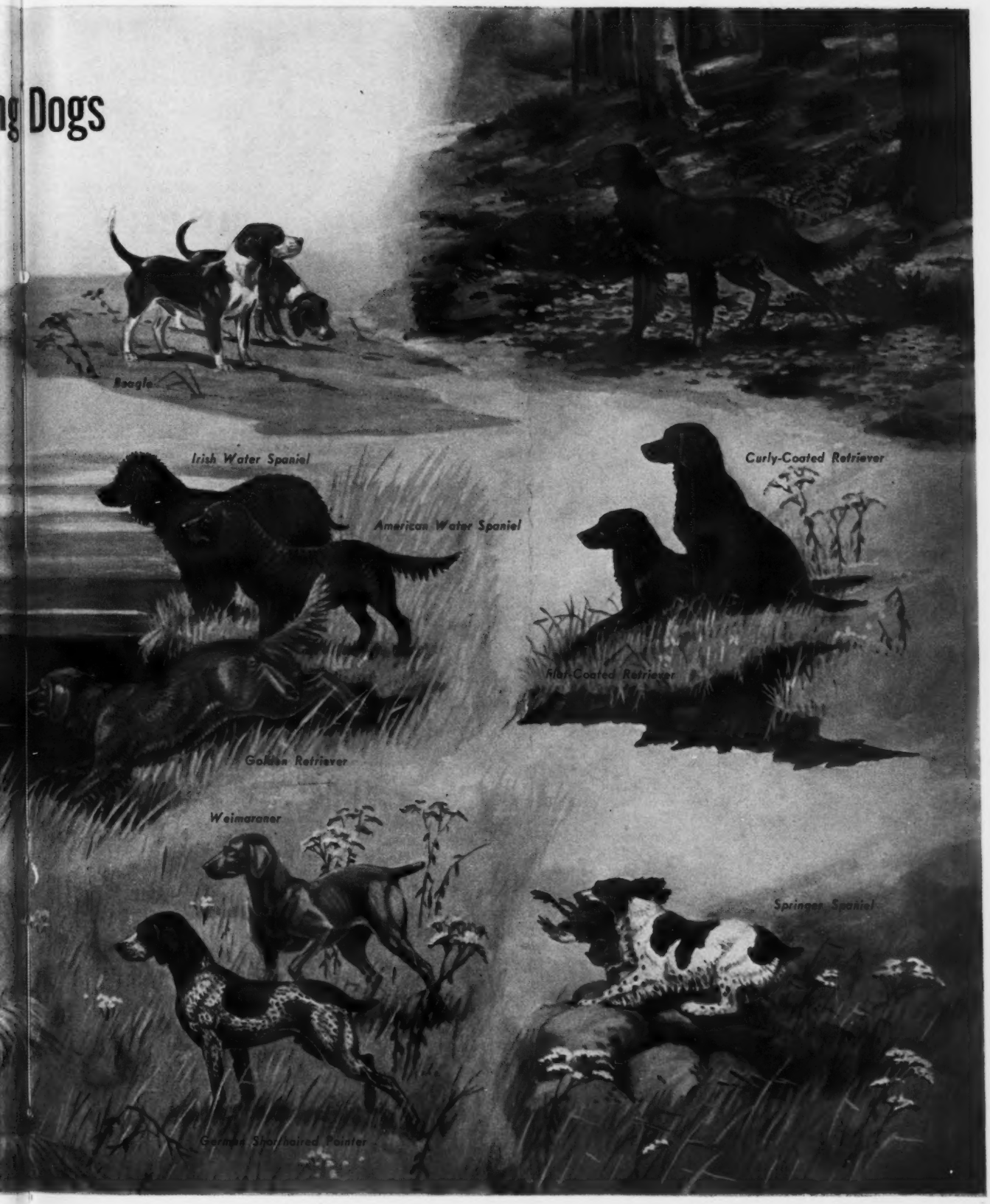
English Springer Spaniel

The springer is undoubtedly the most widely used and most popular hunting dog of the spaniel clan. They combine in a rugged, 40- to 60-pound frame, great ability on all manner of small game, including waterfowl. Their ability to browbeat a running pheasant into getting off the ground is something to see and should you wing the bird, you can rest assured it will wind up in your hand if it takes your Springer a country mile.

(*Continued on page* 36)


Popular Sporting D
English Cocker Spaniel
American Cocker Spaniel
Labrador Retriever
English Setter
Irish Setter
Wayne Trimm

ng Dogs


Beagle
Irish Water Spaniel
American Water Spaniel
Curly-Coated Retriever
Flat-Coated Retriever
Golden Retriever
Weimaraner
Springer Spaniel
German Shorthaired Pointer

Legal hunters harvest, at most, a third of the annual deer crop of New York State. The other two-thirds are wasted, largely through starvation, illegal shooting and predation. The origin of this wasteful situation, the factors which continue to keep legal hunter-harvests at a low ebb, some of the steps other states have taken to overcome similar problems and recommendations for correcting the wastage of New York's deer, are the subject of this report.—A. B. HATCH

Deer—Facts and Fancies

by Dr. A. B. Hatch, ***Chairman,***
N. Y. S. Fish and Wildlife Management Practice Board

ELERS KOCH once said that with the possible exception of the plains of East Africa, primeval America contained a greater number and variety of big game animals than the eyes of man had ever seen. The spoilage of that great heritage during the 19th Century, through unrestricted slaughter, left an indelible determination in the minds of Americans to preserve what was left with every conservation weapon at their command.

Two of these weapons gained wide acceptance and application — the setting aside of large, big game refuges, especially in the Western States, and the passage of laws, by most state legislatures, confining legal shooting to bucks only.

It was inevitable from such a background, that the pendulum should swing to the opposite extreme. During the 20th Century, because of over-protection, the largest part of every yearly crop of many big game species has been allowed to die on the vines of starvation, predation, and illegal shooting. Much the smallest part of every yearly crop has fallen to the guns of legal shooters, and this despite our Nation containing a greater number of hunters, per unit of population, than any other highly civilized country in the world.

The paradox of this incredible swing—from one extreme to the other—is that the conservation movement which brought the first era to a close, spawned the second by failing to distinguish clearly between conservation principles applied to a rapidly renewable resource such as wildlife, and to a non-renewable resource such as minerals. The latter, once mined, is gone forever. But wildlife recovers from adversities like the proverbial bouncing India-rubber ball. Actually, the professional conservationists, themselves, did not even dream that the breeding potential of big game could approach that of the white-tailed deer whose annual increase under favorable circumstance has been found to exceed 50 per cent of an entire herd per year! (See *The Reproductive Potential of Deer*, opposite.)

With such a reproductive potential, deer can and did bound back in a few years from near extinction to numbers which far exceeded the capacities of thousands of wintering areas in the Nation to grow adequate food. The public, however, unable to read signposts of mass starvation and overbrowsing during Summer and Fall—in areas inaccessible or unvisited during Winter—has long refused to believe these cruel facts-of-life about deer.

Is Public Opinion Changing?

Fortunately, the pendulum of public opinion appears to be coming slowly to rest in mid-swing. Some 39 states no longer confine legal-shooting to bucks only and these states harvest, *each year*, about twice the percentage of deer as do the buck-law states (Durwood Allen, "How Our Game Laws Waste Deer," *Field & Stream*, October, 1958).

Still other states, including all but one state from the Rocky Mountains to the West Coast, have concluded that the final solution of the problem is to pinpoint and regulate hunting in unit-areas according to the number of deer, the hunting pressure, and the peculiar geographic characteristics of each area.

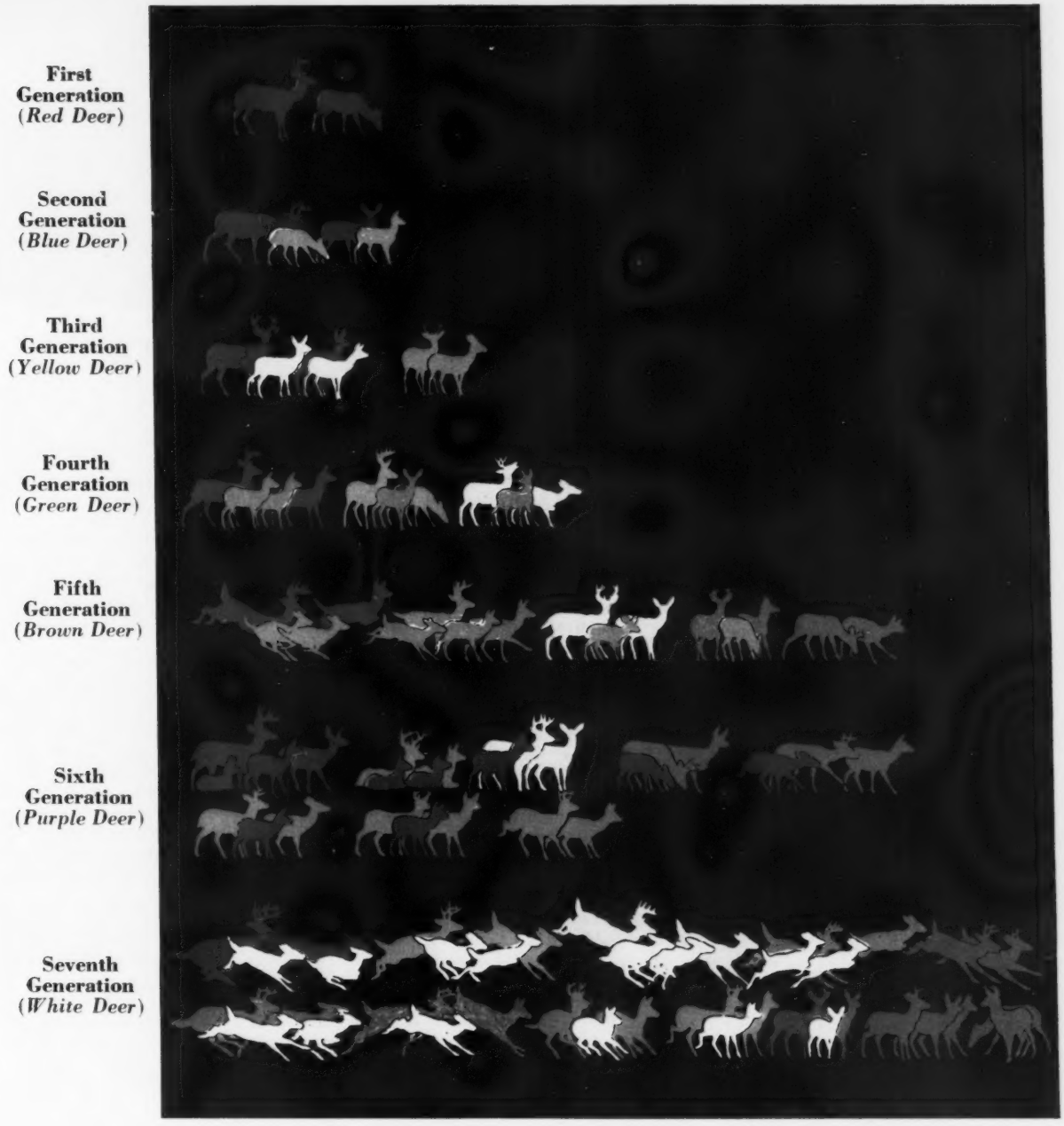
Effective measures which allow deer populations to build up rapidly, in areas temporarily low, are the limitation of hunting permits and confining shooting to bucks only for periods of one to several years.

In units where deer are overabundant and threatened by starvation, permits are issued authorizing the taking of deer of either sex. Seasons may be extended or there may be pre- or post-seasonal (extra-seasonal) hunts. And in many cases, individual hunters are allowed multiple permits (up to three). These extra-seasonal hunts commence as early as August in remote wilderness areas where the regular season, as in the Adirondacks, is largely useless because of early Fall storms, freezing weather and inaccessibility of vast interior areas. Post-seasonal hunts frequently continue into January of the following year in more accessible areas. Long extra-seasonal hunts have the triple advantage of (1) permitting hunters to enjoy hunting under uncrowded conditions where hunter-skill, rather than the frantic running to-and-fro of frightened deer, plays the largest part in sucess, (2) not interfering with long established regular seasons, and (3) the permit fee (which is usually between $1 and $10) pays for all costs of organizing and conducting the extra-seasonal hunts and for additional protector personnel.

This pinpoint type of flexibility has enabled such states to provide legal hunters with more, and with better hunting than any other system tried on a long term basis. It also produces bigger, fully-developed deer with larger antlers because Winter browse can be maintained in optimum condition. Neither the productive capacities of wild land, nor the deer produced by these lands, are needlessly wasted, as they are whereever less detailed local control of hunting prevails.

The Picture In New York

The people of New York State in the 1880's were far ahead of their time in seeking to preserve their natural resources. They created the first, and still the best, State Forest Preserve in the Nation. President Theodore Roosevelt, the greatest American conservationist of all time, was a product and a Governor of New York. Through him the State played a prominent and indispensable role in America's fabulous era of conservation; an era when the National Forest Preserve, the National Park and the National Wildlife Refuge systems came into existence or into their greatest


First Generation (Red Deer)
Second Generation (Blue Deer)
Third Generation (Yellow Deer)
Fourth Generation (Green Deer)
Fifth Generation (Brown Deer)
Sixth Generation (Purple Deer)
Seventh Generation (White Deer)

Reproductive Potential—White-tailed Deer

period of expansion. Regretfully, these early New York conservationists were outstandingly successful also in instilling into our citizens the fixed idea that conservation is synonymous with "preservation."

There followed the all too familiar pattern of legislative confinement of deer hunting to bucks only, rapid increase and spread of deer to all parts of the State, emergence of an "Alice in Wonderland" public sentimentality over the killing of doe, rapid deterioration of critical deer yards, mass starvation, the fantastic wastage of a great resource while only 6 to 16 per cent of New York's army of deer hunters were successful, and finally, the inevitable development of strong opposition to antlerless deer seasons by misinformed or amateur hunters who can somehow suppose that deer are scarce in country which actually harbors 25 to 50 per square mile.

New York was conservatively estimated to contain some 400,000 deer in 1956 and the reproductive rate was placed at 200,000 to 225,000 each year (E. L. Cheatum, "Too Many Deer," THE CONSERVATIONIST, June-July, 1956). While the hunter-harvest of deer subsequently has been the highest in New York's history, it has totaled only 70,000 to 75,000 per year. What becomes of the other 125,000 to

150,000 deer born in New York each year which are not harvested?

It is not surprising from this 20th Century background that leadership in wildlife conservation, for which New York was noted a few decades ago, has passed largely to other states, some of which were still territories when New York was in the heyday of its conservation glory. True, we still enjoy an enviable reputation for outstanding research and for technical know-how about wildlife management. But conversely, the Conservation Department and its skilled personnel have not possessed the authority to put their knowledge into practice.

The public, still imbued with the "preservationist" ideas of our grandfathers, has kept control over deer hunting in the Legislature. Here, the influence of even a handful of politically powerful "preservationsts" can, and long did, prevent the passage of sound deer hunting legislation.

Conservation Statesmanship

The times are ripe for a rebirth of the bold conservation statesmanship which enabled our forefathers, in the face of bitter opposition, to put the latest conservation objectives into our laws, into our State Constitution, and into the minds and hearts of our people.

Fortunately these statesmen have appeared on the horizon. In the Legislature, there has been a succession of increasingly bold advances; first, an occasional local or Southern Tier antlerless deer day, later a State-wide day, and finally, temporary delegation of considerable regulatory authority to the Conservation Department during the 1959 season (the Senator Gordon-Assemblyman Pomeroy Bill.)

The greatest advances in deer legislation, however, remain to be achieved. The Gordon-Pomeroy Bill provides the Department with only limited regulatory powers during a single year in the Adirondacks. But the problem is not temporary —it is ever with us, changing from year to year and from place to place, as sharply and as unpredictably as the weather, influenced by a multitude of shifting decimating factors—legal and illegal shooting, predation and starvation. Legislation is needed which will allow the Department to cope with these changes as they occur. Legislative processes, no matter how enlightened, are too slow to permit adequate solutions on short notice.

The remainder of this review is an effort to portray some of the widely different problems of deer regulation in New York and to indicate how other states have, and how New York could solve our similar problems.

Left, over-browsed Adirondack deer yard; right, same area five years after protective fencing

Some Major Deer Problems of New York

New York has vast areas of wild, roadless woodlands in the wilderness sections of the Adirondacks where legal hunting has probably accounted for less than 5 per cent of the deer born in these areas since the 1880's. Here our "preservationist" philosophy and our inflexible deer laws have combined with inaccessibility to condemn, over the years, one or more millions of deer to inevitable starvation. The good food trees and shrubs in the "severe Winter" deer yards have long since disappeared. And it will require many years of careful control over deer numbers to allow the critical deer yards in these "wilderness slums" to regain their carrying capacity. The type of regulatory flexibility that is needed to permit such control is the same that has long been used in the Far West. It consists of authority to hold early seasons—late September and early October—during which hunters can safely travel in a roadless wilderness without the danger of becoming snowbound or icebound on frozen lakes. To attract sufficient hunters into these hinterlands, the Department will undoubtedly find it necessary to offer various bonus inducements.

Outside interior wilderness areas of the Adirondacks, New York has thousands of square miles of well-roaded and forested wildlands where deer problems are equally acute. Here, also, mass starvation has been no stranger, but the greatest reaper has been the constant year in and year out illegal shooter. Confined by law to the legal harvesting of bucks, or recently to a largely useless single day of hunter's choice on the last day of the season, the true sportsman has had essentially no impact upon the growth of deer herds. It is the spot-lighters, the market hunters, the casual out-of-season illegal shooters and the careless trigger-happy and sometimes purposeful doe shooters, during the regular seasons, who have long racked up a staggering kill. In fact, if it had not been for these illegal shooters, who take doe as readily as bucks, the critical Winter deer yards of well-roaded sections of New York would long since have been as thoroughly destroyed as they are in the wilderness sections of our State.

What type of regulatory flexibility is needed to control these deer herds (assuming, of course, that with better law enforcement the role of illegal shooting in controlling deer herds will become less important)?

The method most widely and successfully used in other states consists of dividing the state into management units, the boundaries of which are determined by the conditions and special needs within each area, and then issuing the number of deer hunting permits for each unit that is required to balance deer numbers with the availability and condition of deer yard foods. As mentioned earlier, this system is almost universal throughout the western United States.

Another is the idea tried on a limited scale in Wisconsin; namely, providing each party of two, four or six hunters with an antlerless deer tag according to the abundance of deer in each locality. This method has markedly reduced the numbers of antlerless deer left in the woods to rot during regular seasons.

Which method would work best in New York is unknown; only the Department with men in the field, is in a position to find out.

New York possesses a multitude of localities where deer are causing major damage to farm crops. One farmer in Dutchess County in 1958 killed, dressed out, and turned over to the Department for disposal, 116 deer in one small orchard. By heaping such hardships and unpleasantness upon landowners, we create antagonisms which strike at the very concept of free public hunting on private lands. This man and many other farmers pleaded with sportsmen at the Kingston meeting of February 7, 1959

(sponsored by S. James Matthews, Vice Chairman of the State Fish and Wildlife Management Board, the District Manager of the Conservation Department and members of the Conservation Council), for support for the Gordon-Pomeroy Bill so that sportsmen could harvest these deer under conditions resembling less closely a slaughterhouse. Why should our laws be so inflexible that sportsmen must stand idly by, watching such slaughter? Each case presents new and unforeseen problems for which one must sometimes waste years to secure corrective legislation. Flexible regulatory authority vested in the Department, with which the Department can handle each problem as it arises, is the obvious solution.

New York has been holding a one-day, deer-of-either-sex season in the western part of the Southern Tier periodically for 20 years. It was started through the insistence of farm groups, whose members were no longer willing to tolerate excessive crop damage. The Department's biologists, knowing the situation well, supported farmer demands and won, thereby, many an enemy among doubting sportsmen. These special one-day seasons have been highly successful in checking excessive multiplication of deer in western New York. Crop damage has been kept to a minimum, critical Winter deer yards have not been damaged and these deer weigh a good 20 pounds more than their Adirondack cousins at all periods of life. (See Severinghaus, "Big Deer vs. Little Deer," this issue, page 30.)

By every other criterion, one-day deer-of-either-sex seasons have been a public disgrace. From long before dawn until long after nightfall, the countryside literally crawls with hunters. During such a season there is no need for skill in stalking or still-hunting. Sooner or later a frantic deer, with tongue hanging and breath coming in deep gasps, will stumble into a gang of noisy shooters; slugs and cannonade rattle and reverberate over the hillsides.

When I was a boy, each Fall a day came when we went out to the pigsty with a '22, shot a half-dozen hogs between the eyes, butchered the carcasses and hung them up to cool. As a sporting event, a one-day antlerless deer hunt is not wholly dissimilar.

Deer can be held in check, without degrading the fine craftsmanship of deer hunting into a mass slaughter. Long, limited-license seasons, in unit areas, is a tried and proved method. In any case, bucks and antlerless deer should always be hunted together if wastage of does and fawns, left in the woods by careless shooters, is to be curtailed.

Finally let us consider the situation in District II (Madison, Otsego, Chenango and Broome counties) a part of the Southern Tier where farmlands are intermixed with woodlands and reforestation tracts.

The Deer Problems of District II

Deer are the most important game species of this district. Their numbers, in the several counties and geographical divisions of the district, are extremely variable. They are especially scarce, at the moment, in the northern two-thirds of Madison County, while 40 miles to the south, in Chenango County, they are so numerous they are "eating themselves out of house and home." Indeed, the Chenango River Valley is one of the few areas in New York, where mass starvation has been witnessed by the car-riding public from State and county highways.

Why should extremes of overabundance and scarcity exist virtually side by side?

Basically the reason is inflexibility of deer hunting laws. The idea that diametrically opposite situations existing in Madison and Chenango counties can be corrected, that deer numbers can be maintained in balance, by means of uniform State or district-wide deer laws, is as naive as Walt Disney's "Bambi!"

Chenango County has some 67,000 acres of abandoned farmlands, purchased and reforested by the State—a cherished conservation tradition in New York. Over the years, these lands have changed from readily accessible abandoned farms, with an abundance of Winter deer food, to largely impenetrable plantations where deer find perfect escape cover during the late Summer and Fall but virtually no food during the Winter.

Progressive inaccessibility, the "Buck Law" and the phenomenal 50 per cent compound interest reproductive rate of the white-tailed deer of the Southern Tier, combined to skyrocket a handful of original deer into a vast herd which ran out of critical Winter food in the mid-50's. Today they are forced, in years of deep snows and minimum forage, into the valleys and on to the open fields of private farms. Here they eat hand-out corn and everything else in sight, but still lie down and die of starvation.

By contrast, the northern two-thirds of Madison County has very little reforestation lands. Over the years deer have continued to be accessible, both to illegal and to legal shooters. The few original deer increased, but not by leaps and bounds. Then, during the last two years (1957 and 1958) deep snows, a small army of freely roaming pet dogs, which killed more deer than legal hunters, and the State-wide antlerless deer day, combined to wipe out more than two-thirds of an already small herd.

How many other basically similar cases of over- and under-abundance of deer are there in New York which owe their inception to inflexible and broadly applied State or region-wide deer regulations? Probably many dozens. Unfortunately, they can never be corrected until, and unless, we are willing to regulate hunting on a local unit basis, rather than over an entire region or the whole State.

Our major concern as a District Fish and Wildlife Management Board, is to find means for persuading landowners to extend the privileges of free hunting to the public. How has the Chenango deer herd affected the attitude of local farmers on this privilege?

In 1956, after an especially bad Winter when hundreds of deer died and were buried in bulldozer trenches, in full view of the public in the Chenango Valley, opinion changed perceptibly. The Legislature authorized the Conservation Department to hold one-day, deer-of-either-sex seasons, to take care of such overpopulation, provided as many as eight counties or parts of counties were included in a block. Along with Madison County, which did not need such correction, Chenango County gained its first deer-of-either-sex season, the first day of December. It snowed, the few access roads into the State Reforestation lands became impassable to hordes of town and city hunters. They parked their cars by the thousands along the highways and in armies struck out across the valley farms. The result? Today, there are whole valleys where the farms have been posted and the landowners are bitterly opposed to deer hunting sportsmen.

There are far better ways for managing deer, for regulating hunting and for winning friends, instead of enemies, among the landowners, upon whom most future hunting in New York depends. These ways are known and widely used in a score or more of our United States. And these ways are known to the men of the Conservation Department.

For some twenty years, the New York State Conservation Department has maintained technically trained wildlife specialists on a field study of deer. The group has been outstandingly successful. It has won national and international recognition for its documented details on the life and problems of the "whitetail." A wealth of information has been gathered on the breeding potential of deer on good, poor, and indifferent ranges; on food and cover requirements; on the decimating factors of legal and illegal shooting; on Winter starvation, disease and predation. The group has developed methods for determining the age of deer and for ac-

curately computing the number of deer per square mile based on age composition and hunters' take. They have fed deer supplementally to prevent starvation; they know the uselessness of this measure and all other measures in the absence of adequate hunter-harvest of the yearly crop. This group, and the men throughout the Conservation Department, know what other states have done to solve similar problems and a multitude of others which are part and parcel of properly managing deer.

Regretfully, however, the Department and its deer experts have had almost no opportunity to put their knowledge into practice. Each new effort to liberalize the harvesting of deer in New York has been greeted in the past by public outcry and warnings that the deer experts would wipe out our deer.

Why a considerable part of the public can imagine that the men of the Conservation Department should want, or try, to wipe out our deer herds and thereby "the hand that feeds them," is beyond understanding. As John S. Flannery of Utah once wrote: "It would be similar to a milkman destroying all of his employer's cows. It wouldn't make any more sense than a factory worker blowing up the plant where he earns his living. In short, it would be absolutely stupid."

It is also "absolutely stupid" for New York sportsmen to continue to spend license moneys for experts to gather information on deer every day of the year—Winter, Spring, Summer, Fall—and then ignore their recommendations in favor of those made by laymen: By sportsmen who spend a few days hunting deer each Fall during the one season when deer have the fewest problems, when deer are widely scattered and difficult to find; when deer are not hungry or starving or being harried by predators or, as "Fishin' Jimmy" might have said when there are no problems "generally" except perhaps for "fightin'" and "reproducin'" or keeping out of sight of hunters (most of us will never know how easy this is!); by sentimentalists who, if they think about it at all, mistakenly imagine that Nature has a less cruel method for balancing deer with their food than by hunter's gun; by vocal individuals and groups which for commercial, selfish or other ulterior motives, do not want "outside" hunters to harvest their deer!

Is it not time that we gave responsibility for managing New York's deer to the experts we pay to spend every day of the year to work with and think about the problems of deer management?

The truth is that to manage an animal, which is as susceptible to the vagaries of weather, environment, disease, predation and civilization as deer, and to do this by regulating hunting pressures created by a half-million of the most independent and free acting citizens of our State, is a task requiring extraordinary delicacy and profound knowledge of ecological and sociological interrelationships. It is not a problem for laymen; each of us can see but a minute part of the whole picture.

With this brief resume of the status of deer in New York as a background, the Fish and Wildlife Management Board of District II recommended to Commissioner Wilm, that the Conservation Department arrange for the introduction of legislation which would provide the Conservation Department with flexible regulatory authority over deer hunting whenever, wherever and however the need arises.

A Department deer bill which partially accomplished this objective on a temporary basis (1959 only in the Adirondacks where the problem is most acute), was introduced by Senator Gordon and Assemblyman Pomeroy, it received the unanimous support of all delegates to the Conservation Council and it was passed.

This is an historic landmark in the history of conservation in New York. But it could be only a temporary landmark. The real task lies ahead; the establishment of wise use of deer by means of flexible hunting control as a permanent State policy. This can be achieved only if the public knows the facts and if we will forego, what all of us have come to regard as our inalienable right as sportsmen; namely, running to our representatives in the Legislature every time we imagine that deer are being exterminated in our locality. We are accustomed in many areas of New York to peak deer populations, to densities in normal years that are far greater than can be sustained in severe Winter. As Durwood Allen (*Bulletin of Medical Research*, 13:20-30, 1959) recently wrote: "Any build-up of animal numbers beyond the usual range is looked upon by hunters as prosperity and it becomes a new norm against which lesser densities are measured. The biologist regards such a concentration of numbers as unstable and temporary because . . ." of its inevitable collapse.

One final word of caution. Let no one doubt, but that there will be a few errors, if the Department is given broad and flexible control over deer hunting. But the errors of over-harvesting, about which sportsmen are most concerned, are quickly corrected in a species with a compound interest reproduction rate of 50 per cent. It is only the errors of under-harvesting that leave permanent scars, on our land, in the welfare of deer and on our public conscience.

Big Deer Vs L
Food is the K

by C. W. Severinghaus and Ro

WHERE are the biggest deer in New York? Are they in the Adirondacks where, because of light hunting pressure in vast interior areas, individual deer may live to more advanced ages? Or are they in western New York where their food is more bountiful, Winter weather less severe? To pin the answers to these questions down, big game biologists of the Conservation Department have analyzed a raft of records amassed, with the cooperation of big game hunters, at deer check stations strategically located across the State.

Since 1945, the sex—the ages—and the dressed weights of 3,454 bucks and 1,822 does checked through these stations, have been recorded. The answers are at hand and are clearly shown in the accompanying graphs—see *figures 1 and 2*. For bucks (*figure 1*) you will note that, age for age, there is about a 20-pound difference in favor of western New York bucks over their Adirondack brethren. In the case of does, (*figure 2*) the weight differential is even more pronounced, averaging a little more than 20 pounds more for the western New Yorkers. Although the average weights from the Catskills are not shown, they are, with minor variations, similar to central Adirondack weights.

Incidentally, you can see also that bucks grow considerably larger than does, whether in the Adirondacks or in western New York. There is about 35 pounds difference, for example, between the 2½-year-old bucks and equal-age does, in both regions. The difference increases with age until at six and one half years there is a 65-pound difference. This, of course, is expected, since the males of most animals are larger than the females. One reason for this great difference in weights is that the does stop growing in skeletal size about two years before the bucks do.

But let's return to our principal theme—the striking difference in weights of western New York vs Adirondack deer. Why this difference? The most important factor is the food supply. Western New York has very good deer range which has been maintained in this condition by antlerless deer seasons whenever the population grew large enough to threaten overbrowsing and deterioration of the natural food supply. These deer have enough food the year 'round. It

Little Deer Key Factor

Rosalind Gottlieb

means added pounds for both bucks and does. In contrast, much of the central Adirondacks has an overpopulation of deer for the available food supply. The supply of nutritious browse has decreased gradually there since about 1885 and too many deer for the food supply has kept it overbrowsed. In most winters, there simply is not enough food to go around and many deer starve. (See "Report on Starvation Losses, 1958-1959," CONSERVATIONIST, Oct.-Nov., 1959.) Moreover, the survivors never recover completely and remain underweight the rest of their lives. Meanwhile, the range, because of overbrowsing, continues to deteriorate, making the situation worse.

Deer in all regions have about the same average weight at birth—seven pounds, seven ounces for the males and five pounds, 11½ ounces for the females. Therefore, the deer from all types of range have an equal potential for good weights at birth but, depending on the food supply, they will prosper, on the one hand, or run light from undernourishment, on the other. In only six months, the fawns of western New York, with a good food supply, average 20 pounds heavier than those of the central Adirondacks where the range is overbrowsed. Now we come to what may appear, at first glance, to be a paradox—hunters, taxidermists (and we) agree that individual Adirondack bucks will run larger than those of western New York. How come? Simply because of the preponderance of older deer in the Adirondack population. Because there are more of these older and thus, heavier deer in the Adirondacks, they "weight" the herd average so that it is virtually the same as that of the western New York herd. Now this is something to consider if you are out for a big buck, for your chances are better, about two to one, of doing just that if you hunt the Adirondacks. To be more specific, a central Adirondack hunter has about 46 chances out of 100 to get a buck weighing 145 pounds or more while in western New York he has only about 26 chances in 100. When broken down by age classes, however, the Adirondack deer are much lighter than their counterparts of western New York. If the old and large Adirondack deer had been taken in western New York, they would have been 20 pounds heavier per deer.

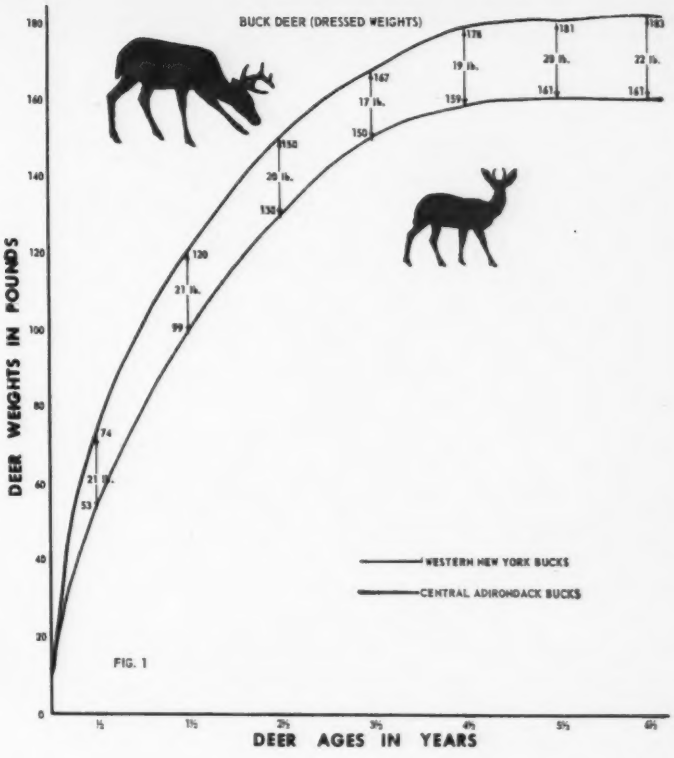


FIG. 1

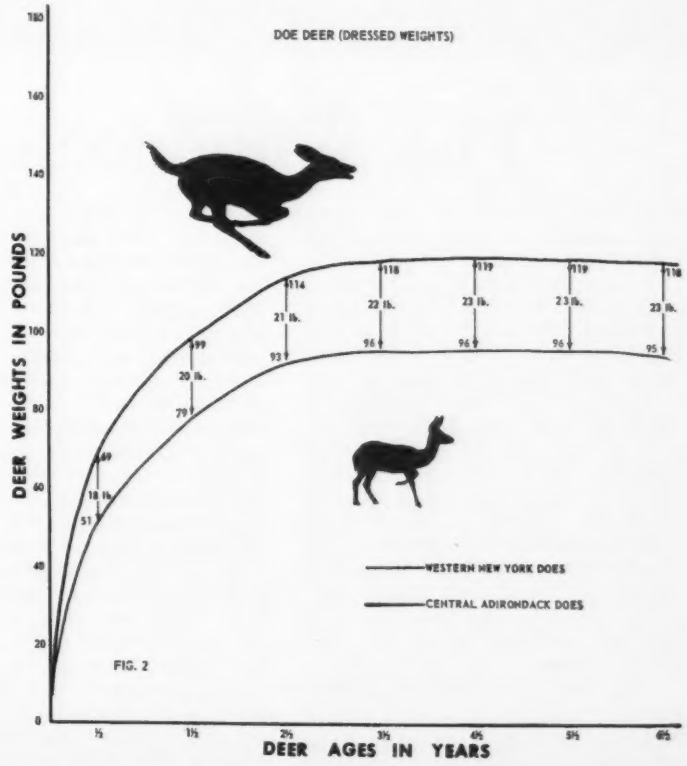


FIG. 2

The Woodcock

by Charles P. Brown,
Game Research Investigator

THE woodcock does not resemble any of our other game birds except its close relative, the Wilson- or jack-snipe. The bill is long (about 2¾ inches for a female, 2½ inches for a male), and the eyes are placed high and far back on the sides of the head. The plump body is brown mixed with black above, the breast is buff, while the back of the head and neck are black marked with light-colored transverse stripes. The tail is stubby, but quite broad when spread. Slightly larger than bobwhite quail, our woodcock average six to eight ounces in weight, with the females consistently running heavier than the males. Technically classed as shorebirds, they usually are considered as upland game because of their habitat preferences.

These fine game birds are migratory, and spend only six or seven months of each year with us. Their most important breeding grounds are in southeastern Canada and the northeastern United States, the chief breeding grounds in this country occurring in eastern Maine. The Winter concentrations are in the South Atlantic and Gulf Coast states, especially Louisiana.

Woodcock, also fondly known by hunters as "timber doodles," are more numerous and more widespread in distribution in New York State than most people realize. By the standards of those fortunate hunters who gunned for woodcock around the turn of the century, these birds probably would be considered scarce today. But the abandonment of agricultural land, with the subsequent invasion in many areas by alder, aspen, birch, and other trees, shrubs and weeds, has provided a great deal of excellent cover for woodcock, at least in areas where food and moisture conditions are favorable. Today, woodcock breed in all regions of the State including the Adirondacks and Catskills. Of course, they are more numerous in some places than in others, and entirely absent from those areas which lack suitable habitat. In a few sections, such as the southern and southwestern portions of the Tug Hill country in Oneida and Oswego counties, there are, in the aggregate, large acreages of excellent cover. Here the woodcock find moist, poorly-drained soil, abandoned farmland grown up to varying stages of succession, numerous clearings, and a good supply of earthworms.

The early migrants arrive in our southern counties in very late February or early March, and the central and northern sections by mid-March or early April. Since the migration is affected to a considerable extent by the weather, a late, cold Spring tends to delay the arrival of the woodcock.

As soon as he reaches the breeding grounds, each male establishes his individual territory, consisting of resting and

feeding cover and a nearby "singing-ground," the latter for use in staging his evening and early morning courtship performances. The singing-ground often is a small opening in a brushy field, but sometimes an open meadow, lawn, or orchard is selected. It is used practically every day during the mating, nesting, and brood seasons, but the performances usually cease by about June 1.

Now, about this courtship business: Shortly after sunset the male flies to his singing-ground, the time of arrival being determined by the amount of light. On a clear evening, he begins his act by 20 or 25 minutes after sunset, but if it is cloudy, he may be on the scene 15 or 20 minutes earlier. Once on the singing-ground, he walks about uneasily, pausing at frequent and fairly regular intervals to utter a loud, nasal "peent!" The peenting continues for several minutes until, with a whistle of wings, the woodcock takes off in a wide, spiraling sweep on his first flight of the evening. The spiral climb to a height of perhaps 200 feet is accompanied by a trilling noise produced by the wings. At the top of the ascent and during the first part of the descent, a pleasing vocal song is uttered. Less than a minute after leaving the ground, the bird has zig-zagged steeply down to earth to the same spot, and has resumed the peenting note. The interval until the next flight may be from two to several minutes, and a dozen or more flights may be made during the performance period of an hour or less.

The purpose of the courtship activities is to attract the female, and occasionally, she may be seen, near dark, flying in low to the edge of the singing-ground clearing.

The females nest soon after arriving from the South, and there are records of woodcock nests with eggs as early as March 30 in southern New York, and April 8 in the Adirondacks. The nesting season extends through April and May and a few clutches of eggs are hatched in June but, as a rule, most of them are hatched during the last week of April and the first 10 days of May.

The nest is merely a depression in dead grass or leaves, and may occur in a variety of locations—in an overgrown field, in young second-growth woodland, in a hedgerow, among berry bushes, or even along a roadside. But the nests never are conspicuous and usually are found only by accident.

A full clutch consists of four eggs, which require about 21 days of incubation. The female trusts to her very effective protective coloration and does not flush unless an intruder approaches quite close to the nest. Sometimes, during the later stages of incubation, she will allow her feathers to be stroked and even submit to being lifted gently from the eggs without attempting to escape. But such familiarity is inadvisable, since if the female does flush, it is not unlikely that she will desert the nest.

Woodcock nests frequently are destroyed by predators, or deserted because of heavy rains. Crows are among the worst of the nest wreckers, ably abetted by skunks, opossums, snakes, and other egg eaters.

The chicks are active as soon as they emerge from the shells, and the mother leads them away within a few hours. The family remains within a short distance of the nest for the first day or two, and can be located by careful searching. It is at this time that the chicks are easily captured for banding, provided that the location of the nest is known beforehand and a trained dog is available to assist in locating the hen and brood. As part of a research study of woodcock, the writer succeeded in banding 54 chicks by this method during the Spring seasons of 1950-53, inclusive. Incidentally, only one of these banded birds has been reported killed by hunters.

Woodcock live chiefly on earthworms which they secure by probing in moist soil. This staple item is supplemented by centipedes, sowbugs, insect larvae and the like. Small seeds, such as those of strawberry, have been found in woodcock stomachs but it is not known whether these were eaten as food or ingested accidently while probing for worms.

The bill is well adapted to the bird's manner of feeding. The tip of the mandible (upper half of the bill) is movable and very sensitive, enabling the woodcock to locate and grasp items of food while the bill is thrust full-length into the soil.

Most of the feeding is done at night, and astonishing numbers of worms are consumed. The digestive process is very rapid and it is said that a woodcock can eat more than its own weight in worms in 24 hours, although it is likely that the average daily consumption is far less than that.

After the young have been reared to flying age, the timber doodles tend to remain in the same general covers where they spent the Spring and early Summer. But prolonged dry weather often forces them to seek low-lying alderbeds or shady stream banks during July and August, in order to find soil moist enough for probing.

During September and October woodcock continue to use the lowland alder and willow covers, but hunters often find them on the upland hillsides during the day. Here they favor hawthorn or hazelnut thickets, clumps of aspen and birch in old fields, abandoned orchards and similar situations.

This brings us to a subject which is good for an argument whenever upland hunters get together: When do the locally reared woodcock go south, and when do the "flight" birds from farther north pass through on their southward migration? Since the time and migration depends pretty much on the weather, this hassle likely will continue as long as there are woodcock and hunters. The local birds move about to a certain extent, perhaps even moving northward, before the actual departure for the South. On occasion, this has led casual observers to the erroneous conclusion that the migration has begun, since they could not find woodcock in the usual haunts. In years when early, severe storms or frosts occur in Canada and northern New York in September, flights may appear overnight in central New York covers. On the other hand, if the weather holds warm the migration is likely to be gradual, with no large concentrations of flight birds and with woodcock present upstate into early November. A few woodcock may remain in the State over Winter, although this is an unusual occurrence, except on Long Island.

In the past, management of woodcock has consisted in regulation of season length and bag limits within limits prescribed by the Federal Fish and Wildlife Service. Recently, experiments in habitat improvement have been undertaken in Pennsylvania, New York, and other states, which may have practical application. These include rehabilitation of Fall covers which have "gone by," through thinning with brush-killing sprays, and extending the life of Summer and Fall covers by pasturing cattle therein.

Woodcock seem to withstand the impact of today's increased hunting pressure fairly well. Population levels dropped slightly throughout the Northeast in the mid-1950's, but an upward trend has been noticeable for the past three years. It is likely that extremes of weather are more important than hunting in the effect on population levels. Occasionally, a severe freeze on the wintering grounds in the Deep South results in heavy mortality. Similarly, hot, dry weather during the brood season can result in losses through inaccessibility of food. But, on the whole, the timber doodle is doing all right and should continue to furnish sport for the many hunters who enjoy gunning for this long-billed little game bird.

This article is based on studies conducted by the Conservation Department under the Pittman-Robertson (Federal Aid in Wildlife Restoration) Program.

the back of the book

Fall campsites

Again this Fall, the Department will maintain "open status" for a number of the public campsites in the Adirondacks and Catskills for the benefit of hunters and fishermen and the growing number of people who enjoy camping out during the Fall colorama season. They will be open until December 1.

The campsites scheduled to remain open are: *Adirondacks* — Brown Tract Ponds, Cranberry Lake, Eagle Point, Eighth Lake, Fish Creek Ponds, Forked Lake, Golden Beach, Lake Durant, Lake Eaton, Lewey Lake, Little Sand Point, Meacham Lake, Moffit Beach, Rollins Pond, Sacandaga, Sharp Bridge, Wilmington Notch. *Catskills* — Beaverkill, Devils Tombstone, North Lake, Woodland Valley.

Water and sanitary facilities will be in service until there is danger of freezing weather. All other facilities will be available throughout the period.

Caretakers will be on duty at Lewey Lake and Forked Lake only and here permits must be secured and the camping service charge will be collected. At all other campsites listed, the use of the areas will be free but it is suggested that the local Ranger be notified before setting up camp.

Hunters using the campsites may possess firearms on these areas during the hunting season but Department regulations forbid the discharge of firearms on a public campsite at any time.

All campers are requested to use utmost care with fire and see that the areas are kept free of debris and damage. They're your property and you pay for them. Protect them and keep them clean.

Participant sports

In June of this year, *The White Plains Reporter Dispatch* reviewed the latest report of participant sports in the United States as compiled from the records of a dozen or so representative organizations such as the American Bowling Congress, Outboard Boating Club of America, Sport Fishing Institute, National Golf Foundation and others.

The resultant composite table, reprinted below, is graphic evidence of skyrocketing interest in recreation *and* particularly indicative of the dependence of our people on the natural resources which afford recreational opportunity. Note especially how boating, fishing and hunting rate in the standing of participating sports.

Sport	*Participation*		
	1946	*1956*	*1959*
Boating	20,000,000	28,000,000	37,000,000
Fishing	13,100,000	20,813,000	25,620,000
Bowling	12,500,000	20,050,000	22,000,000
Hunting	9,990,000	11,784,000	18,000,000
Basketball	9,000,000	11,000,000	11,275,000
Baseball	5,000,000	7,106,000	7,925,000
Softball	4,700,000	6,675,000	7,840,000
Tennis	4,100,000	6,583,000	6,714,000
Golf	4,300,000	5,100,000	5,400,000
Handball	———	———	5,000,000
Archery	1,700,000	4,600,000	4,725,000
Skiing	1,400,000	2,180,000	3,000,000
Football	1,500,000	1,725,000	1,780,000
Track & Field	675,000	580,000	591,000
Wrestling	150,000	170,000	175,000

Forestry and chips

Progress is being made in the utilization of slabs, edgings and other leftovers at wood-using plants as a step toward better conservation. More than 5,125,000 cords of chips were furnished to pulp mills of the U.S. in 1958—an 18 per cent increase over 1957. Chip utilization is one important facet of a conservation movement which is gathering momentum.

Tree farms and recreation

Tree farmers recognize the tremendous multiple use benefits that can accrue from their lands—one of the most important being outdoor recreation. American Forest Products Industries, sponsors of the voluntary Tree Farm program, reports that although the farms are managed for timber crops to use in the manufacture of more than 5,000 items Americans use every day, about 90 per cent of the lands are open to public use for hunting, fishing, hiking, picnicking, skiing and camping.

With this potential of nearly 50 millions of acres of private lands available for public use, it certainly behooves every user to treat those lands with utmost care, to help assure continuance of these privileges.

Deer starvation, 1958-59

Starvation losses last Winter among deer in the Adirondacks were less than expected despite what Conservation Department biologists said was the longest and most severe Winter in 25 years. At Paul Smiths, for example, there was only one day from December 1 to March 31 that the temperature did not dip below freezing and there were 54 days with below zero temperatures.

To secure the needed information field crews traveled 567 miles on foot, in 47 typical deer wintering areas to check the number of deer that had died in these "yards." They recorded an average of 8.8 deer per square mile, dead from starvation. Heaviest losses were in St. Lawrence, Hamilton and Franklin counties. In addition, they recorded an additional 4.4 deer per square mile dead from other causes. The majority of these—more than 60 per cent—were adult deer that had been killed or wounded but not retrieved by hunters.

Animals that succumbed to starvation were predominantly fawns (83.6 per cent) which is not unusual because they have a much harder time competing with the larger adults animals for the limited food available. Because breeding-age females were not seriously affected by the winter kill, biologists expect this Fall's population will be about the same as in 1958.

The starvation loss was considerably less than expected because even though the Winter was severe—at least 12 thaws, somewhat evenly distributed, occurred from December 1 to March 31. These thaws and subsequent freezes built up a hard base and crusting in the 30"- to 50"-deep snow that allowed the deer to move about much more freely in search of food than if the snow had been soft and deep.

The fact still remains that the Central Adirondacks is carrying a population of deer over and above what the Winter range (yarding areas) will support even during average Winter conditions. Unless these deer are harvested, Nature will continue to take her toll.

Anti-vandalism

A full-scale campaign to combat the increasingly serious problem of wildwood vandalism is developing in the Pacific Northwest as a result of two years' research on the subject by local conservationists. The rapid growth of interest in outdoor recreation has brought a corresponding increase in backwoods vandalism that has reached the point where it has become one of the most serious problems presently facing the National Park and Forest services. State Park and Conservation Department facilities also come in for a heavy share of abuse.

One Director of the National Park Service has said that "much has been done on a nationwide basis to reduce the litterbug problem but, in the National Parks, vandalism is the greater problem. We can pick up litter, but we cannot replace a mutilated natural feature, and the cost of repairs to physical structures is enormous."

Figures available to date, only rough "guesstimates" from the Forest Service, place their annual structural repair bill due to vandalism in excess of $250.000. Twenty per cent of the use-life of forest recreation areas is wasted by the combined attrition of abuse, misuse and overuse.

There is no way to assess the actual and potential dangers to human safety or the irreparable damages to non-renewable natural wonders. Stray bullets whizzing through camp grounds and other recreation areas; anything from rocks to garbage cans are hurled from the heights despite hikers and others below; and vandalism and theft have forced the Services to abandon the practice of stocking patrol cabins and fire towers with emergency supplies. Visitors still ram logs, stones and every kind of trash imaginable into geysers and hot pools; exposed rock faces and old glacier beds are permanently defaced with all manner of inscriptions —even ancient petroglyphs are overinscribed! Ages-old mosses are ripped from the trees of the rain forests; souvenir hunters and rock hounds make heavy inroads on caverns and other geologic formations; trees by the thousands are hacked or felled and picking and digging are seriously depleting many plant forms.

Educating the public to realization of the extent of the problem and their personal losses in taxes, conveniences and enjoyment is beginning to pay off. Illustrated lectures, photographic displays of actual damage in various areas and publicity via press and radio, is already shocking a small portion of the populace into indignant resentment of such behavior and a willingness to co-operate in reducing it.

Then and now

The venerable Model T was the "latest" in forest fire-fighting equipment in the early 1900's. Axes, shovels, rakes and pails for water—and the strong backs of fire fighters completed the fire fighting force. The picture shows "the force" off to fight a fire in the early days.

It's something different today. Forest fire control is highly mechanized, as shown by one of the latest mobile units being operated by Ranger Franklin Wheeler of Warrensburg. This truck is powered to go most anywhere and it can be directed by two-way radio from the central control unit or give directions to fire bosses equipped with portable radio telephones.

The slip-on tank in the truck (not visible) holds nearly 300 gallons of water, pumped by an air-cooled unit and distributed by a live booster reel with several hundred feet of hose. Ten backpack fire pumps are filled and ready for ten strong men to fight fires in places the truck cannot negotiate. The body has compartments for axes, shovels, brooms, rakes, etc., which are needed as much today as they were 50 years ago to properly stamp out a fire. In all, this truck and its equipment can supply nearly 100 men with a full complement of fire fighting tools.

Antlers

The antlers shed by deer each year are seldom found. Mice, porcupines and other rodents gnaw them for the minerals they contain.

"Tree Farm" plantations

A record million and a half plus acres were reforested in the United States in the Fall of 1957 and Spring of 1958 and 86 per cent of it was accomplished by private landowners, many of whom are enrolled in the American Tree Farm System.

The seedling stock for the planting program came from 240 nurseries, 50 more than were in operation during the previous year and they produced more than a billion and a half tree seedling.

Further growth of interest among landowners and expansion of nursery facilities are expected to put next year's planting figure at nearly one and three-quarters million acres.

New York's share in this planting program amounted to nearly 37,000 acres and over 36 million seedlings. The current planting year in New York will bring our total to approximately 42,000 acres.

Popular Sporting Dogs

(*Continued from page 23*)

Brittany Spaniel

It's a toss-up whether the Brittany should be classed with the setters or spaniels. They are close ranging dogs in the spaniel tradition but once they corner their bird they switch on their setter qualification, coming to a staunch point. They are, in fact, the only breed of this group with a well developed instinct to point.

The Brittany turns in a first-class performance on upland game birds; is a good retriever and gives an excellent account of himself on waterfowl. The breed is gaining rapidly in popularity in this country.

The Water Spaniels

These dogs are represented in this country by two breeds—the American water spaniel and the Irish water spaniel.

The American water spaniel, a thoroughly capable dog in the marsh or upland on pheasant, grouse and woodcock, was in wider use 50 years ago than he is today; having been edged out of the picture by the bigger retrievers on waterfowl work and by other spaniel breeds on upland game.

The Irish water spaniel, despite his name, is classed by the A.K.C. with the retrievers, doubtless because of this dog's great ability as a waterfowl retriever. He sports a tightly curled, liver-colored coat and a rather rat-like tail. If nothing else, this sets the breed apart from all other spaniels and retrievers in appearance.

Caution

The use of sodium arsenite for aquatic weed control should be approached with caution according to a report given at the Northeastern Weed Control Conference by Donald B. Stevens, a chemical engineer of the New York State Water Pollution Control Board.

According to the report, two lakes in New York have been treated with sodium arsenite for the past three years and although the material apparently kills the weeds, there are some disturbing side effects. In one lake, the arsenic concentration is high enough to cause its rejection as a source of public water supply. There is a long persistence of arsenic at levels which make it questionable as bathing waters. Arsenic is a poison and the medical profession is concerned about its use as a weed control agent.

Cannon-netting turkeys

Last Winter marked the second year of experimentation to perfect a technique of live trapping wild turkeys since their re-establishment in the Allegany District. These turkeys are a result of northward migration of birds from Pennsylvania, supplemented by stocking with birds artificially reared at New York's Sherburne Game Farm.

During these two years, the flocks have reached numbers which safely allow the removal of some birds for stocking purposes in other suitable areas. The problem is to successfully live trap and transfer them. The cannon net had been used successfully in other states for capturing wild turkeys and this method has been used at the Oak Orchard Game Management Area for taking and banding Canada geese.

The cannon net equipment used on Oak Orchard geese was first tried out on wild turkeys near Olean during the Winter of 1957-58. Eleven birds were captured. During February and March of 1959, use of the net was continued in the Allegany State Park area and eighteen birds were safely taken.

The technique consists of throwing a large net over birds feeding in a baited area. The net is thrown by four "cannon" each firing a three-pound projectile which is fastened to the leading edge of the net. The trapping must be done during the late Winter when the flocks can be enticed to feed in a limited area. Once a flock has been found to be feeding regularly in a certain location, an open spot is baited heavily with shelled corn. As soon as the weather becomes severe the birds will usually start feeding regularly on the bait. The cannon and nets are then put in place. Then a waiting period of several days elapses before the wary birds will accept this new addition and resume feeding.

Once the birds are accustomed to the setup, the cannon are loaded with electric squids, black powder and the projectiles which are attached to the folded net. A wire from the cannon is run to a detonator in an observation blind which conceals the trapping personnel. After this, a tense waiting period elapses while birds move into the vicinity, run in and out of the baited area to the exasperation of the trappers, and eventually, with luck, finally settle down to feeding. A twist of the detonator produces a roar of cannon, a cloud of smoke and snow and—if the equipment has functioned properly—a wild thrashing of birds pinned down by the net.

The birds are carefully disentangled and each is weighed, measured, banded. The age and sex is determined and the wing primaries dyed red for later sight identification. The same day the birds are moved to their new home, which has been carefully selected, and released.

Last Winter out of 42 turkeys over which the net was fired only 18 birds were taken, the difference representing equipment failure caused mainly by the weather. Experience in bad weather use of the equipment can overcome this problem, and it was concluded that such a method can produce at least a limited number of birds raised in the wild for further research and stocking purposes. One look at the 20-pound gobblers that were taken leaves little doubt about the high quality of the stock.—R. E. Hyde, *District Game Manager, Allegany District*

Signs for campers

Lean-to campers in the New York State Forest Preserve can learn woodcraft and how to enjoy maximum benefits from facilities provided by reading signs the Adirondack Mountain Club presented recently to the New York State Conservation Department. This organization, on recommendation from its Committee for Clean Roadsides and Trails, gave to the Department 250 stainless steel signs reading, "Fellow Campers: The real woodsman is careful with fire, burns or buries all refuse, leaves dry fuel for the next man, leaves the campsite as he would like to find it. Are you a real woodsman?"

These signs were designed to promote proper use of the Forest Preserve by encouraging campers to preserve and maintain the wilderness so that it can better survive the pressures of increasing use. They will be placed on lean-to shelters by employees of the Conservation Department.

The Adirondack Mountain Club long has been a leader in sponsoring outdoor activities consistent with the continued preservation of the wild forest character of the Adirondack Forest Preserve. Through its educational program, the club seeks to promote good camp manners among all the users of the out-of-doors, as well as a greater appreciation of the recreational possibilities of the mountains, woods and streams.

Real co-operation

One of the problems with which wildlife biologists are often beset is securing enough specimens to give data that is scientifically worthwhile. Unlike livestock they just can't be selected from an enclosure. Such has been the case with a relative abundance study of cottontail rabbits in Albany, Rensselaer and Columbia counties. The specimen needed was the humerus (upper front leg bone) of cottontails taken by hunters or found dead on the highways.

Ed. Arnold, a *Times Union* newspaper carrier in the Albany area, did yeoman's service for the project by picking up in his travels 92 specimens and delivering them to the Delmar Wildlife Laboratory. This collection was made from February 28, the close of the regular hunting season, to May 22 of this year—one of the most difficult and important periods to secure specimens. Most were in excellent condition because Ed kept them under refrigeration until he had enough to make a delivery worthwhile. They provided a total of 328 separate records for the project. The research boys could use more "Ed. Arnolds."

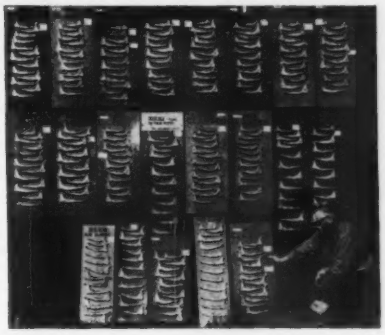
Aging the whitetail

Again this Fall, technicians working on deer management will be setting up their deer checking stations at strategic points throughout New York State.

Today, determining the age of the whitetail is a simple, effective and scientific deer management tool. It is probably *the* most important and useful piece of big game research that has been formulated. This technique was developed right here in New York by C. W. Severinghaus and Jack Tanck of the State Conservation Department.

By means of this aging technique, game biologists have been able to secure reliable census figures of deer according to their respective age classes. By comparing these age class figures with estimates, legal and illegal kill, known reproductive ratios, predation, etc., the biologists can determine quite accurately how many deer are harvested in each age class, each year; how many replacements are coming up in each age class; and how many deer are left unharvested. When coupled with the antler beam diameter measurements, the deer aging technique becomes a valuable tool in helping to determine range quality and in setting future deer hunting seasons. In other words, if there is a preponderance of adult bucks with small, abnormally light antlers coming through deer checking stations, it indicates that the range is over-populated and browse is not sufficient to maintain the herd in good health. It can mean that many deer will starve to death if the approaching Winter is severe. When a situation like this is discovered at the deer checking stations, chances are good that antlerless deer seasons will be recommended for the next deer season to bring the deer population down to where the range can support it suitably.

Since the development of the deer aging technique in New York, 41,497 whitetails have been aged at New York's checking stations. Of these, a grand total of 15,575 deer were aged by one man alone, Jack Tanck, since 1945. Besides these, Jack has aged 2,549 jaw bones which were sent to New York's Wildlife Research Center at Delmar by game technicians from Missouri, New Hampshire, Massachusetts, Maine, Vermont, Texas, South Dakota, Minnesota, Montana, Alabama, Michigan, Wisconsin, Louisiana, Pennsylvania, West Virginia, Connecticut, Illinois and the provinces of Quebec, Ontario and Nova Scotia of Canada—a total of 18 states and 3 provinces. Quite a record!



The jawbone boards pictured—21 to be exact, with Jack Tanck in the foreground—graphically depict the normal wear and tear on the average whitetail's teeth in its normal life span from 1½ to 10 plus years of age, barring unnatural death. These 21 jawbone boards are unique in themselves for it has taken roughly 15 years to accumulate a sufficient number of perfectly typical jaws to illustrate the *normal* wear in each of the deer age classes. These sample jaw boards are distributed to the District Game Managers who use them as guides in aging the whitetails harvested by hunters as they come through the various checking stations scattered throughout the State.

Why not stop in at the next deer checking station you see and learn more about how to age a deer yourself? Why not make your deer a vital statistic?

Tree farms expanding

The voluntary program of growing timber as a crop on private lands, sponsored by the forest industries of the Nation, listed 49,443,582 acres in certified Tree Farms as of July 1, according to American Forest Products Industries.

As of that date, the American Tree Farm System counted 15,043 Tree Farms, an increase of 24 per cent during the past year. The figures reflected an increase of 1,014,131 acres since January 1. The Tree Farm sponsors expected the 18-year-old Tree Farm System to reach the 50 million-acre mark by late Summer.

Christmas competition

According to the 1957 figures, our good neighbor to the north—Canada—is a competitor to be reckoned with when it comes to sales of Christmas trees.

Of a total of approximately 16½ million trees marketed by Canadians that year, here's where they went: 4,119,000 of their trees brightened up Canadian homes, while 12,303,000 were exported to the United States. About a million and a half of these graced New York State living rooms. The remainder made much longer journeys to such far away and exotic places as the Bahamas, British Guinea, Barbados, Trinidad, Jamaica, Panama, Mexico and Puerto Rico.

In 1957, of the estimated 45 million Christmas trees consumed in the United States, approximately 12 million were supplied by Canada. There is no reason to believe that the Canadians will lessen their efforts to corner more of this potential market in the future.—Roy Irving

Submarines and trees

Dep't's Eliason, right, and A.E.C. trees

Most people don't associate atomic reactors with reforestation. The U. S. Atomic Energy Commission, however, is using reforestation at its West Milton (N. Y.) test site not only to provide a security area around the plant but to put a large share of the 4,000-acre tract under good land management.

This Spring, 200,000 trees were planted as the start of a five-year reforestation program on some 1,400 acres. This year's planting included 80,000 red pine, 60,000 white spruce and 60,000 larch provided by the Conservation Department's Saratoga forest tree nursery.

The West Milton site is operated for the government by the General Electric Company. This is where the prototype of the submarine "Seawolf's" sodium reactor was tested. Currently, the prototype of the atomic reactor for the world's largest sub, "The Triton," is being tested here.

Joe's bear

'Bout 40 year ago, one day,
I say to Joe Boleo,
"Suppose we go on top Clear Pond
For hont some deer, eh Joe?"

Now Joe Boleo, she's like for hont
Same tam she's crack shot too,
So when I tell him dat, he say,
"For shore, dat's what we do.

"We'll start right after dinner tam
Mebby we see some bear,
We get there 'long 'bout tree o'clock
Dat's queek enough, by gar."

When we arrive on top de camp,
We open up de door,
We go inside and set our packs
Down on de puncheon floor.

Out front de camp 'bout honder feet
They's old hemlock windfall,
And in between, just leetle grass,
Some brush and brake, dat's all.

Ol' Joe, she's start for make de fire
And I unpack de stuff
They's plenty eat and plenty 'ooch
We have good time sure nuff.

Bam by I hear a leetle noise
And I look out de door,
And den I think for sure
I fall upon de floor

I whisper, "Joe, for gar sake look!"
And what you s'pose we see?
They ol' bear's head, she sticking up
On top dat windfall tree.

Ol' Joe grab hees Winchester,
She's 14 shot, she's full
Joe, take good long careful aim,
And den the trigger pull.

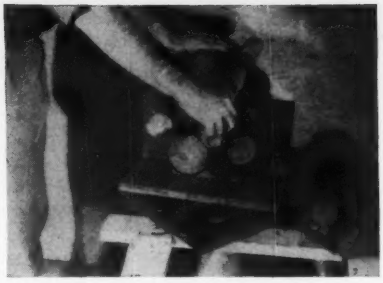
Dat bear go down, ol' Joe reload,
He take one step, no more,
For dare's dat bear's head sticking up
Same place she's stick before.

Den Joe, he empty dat rifle
And every tam she crack
When all de smoke she's clear awey
Dat bear's head, she's coming back.

But when he shoots de last bullet,
She don come back no more.
Says Joe, "By gar I get dat bear,
This tam I tink for shore."

So den we go out to dat log;
We take one look, sacree!
So help me gar, they's 14 bear
Behind dat windfall tree.

—Arthur B. Clark
(Deceased)



Packaged firewood

You can buy just about anything—packaged—at the supermarkets and now it looks as though fireplace wood will go modern.

Until now, the home owner has had to purchase fireplace wood by the cord, if he could find it for sale, and then it was usually dumped in his driveway.

By packaging wood in the convenient form illustrated on this page, the farmer can sell fireplace fuel either at his own roadside stand, or to nursery stores and supermarkets for resale. The bundle can be tossed into the trunk of the purchaser's car and later carried by the binder-twine handle to the fireplace. It is cut to fit any standard-size wood basket.

This method of packaging benefits the wood lot owner as well as the consumer, since it provides a market for small-sized material and wood species undesirable for "crop" trees. Wood lot thinning can yield a marketable product, particularly for those close to large residential areas.

The Department of Agricultural Engineering at Cornell University has perfected a jig that can be easily made for ease in tying bundles of set size (see photo).

Variety

A forester recently marked a woodlot in Orange County and noted there was no great change in elevation or in aspect but soil conditions did vary from thin and dry to deep and moist. Most of the soft woods—white pine and hemlock—had been removed years ago.

A final survey of the residual stand, listed the following, in addition to the pine and hemlock: Silver maple, red maple, sugar maple, tulip poplar, basswood, shagbark hickory, pignut hickory, bitternut hickory, beech, white ash, black ash, sassafras, hop hornbeam, American hornbeam, butternut, pin oak, white oak, red oak, scarlet oak, black oak, chestnut oak, elm, black birch, yellow birch, gray birch, sycamore, dogwood, red cedar, large-toothed aspen and cherry.

Whitebills are good eating

Many a waterfowl hunter passes up good shooting and good eating, because of a name—mud hen. The American coot unfortunately picked up this moniker long ago, and it still sticks with him. When waterfowl were plentiful, gunners paid them little heed but now the coot is one of the more plentiful migratory game birds, still with a sizeable bag limit. It's not generally appreciated but the species can afford fair shooting and, when properly prepared, moderately good eating.

The coot is not a fast flying target but is elusive and by his very slowness and sometimes erratic flight, he can be a sporting target. He will decoy to a set, but not as easily. He can be shot from a sneak boat, pass shooting or jump shooting.

Try bagging a few of these birds on your next duck hunting trip and if you prepare them properly you won't call them mud hens again. The whitebill or coot is a surprisingly meaty bird and its high breast and chicken-like legs provide proportionately more edible meat than many more favored species of waterfowl. With the bird in hand, field dress by pulling off the skin and feathers (leave the wings and feet attached for identification). Eviscerate and place the field-dressed bird in the game pocket of your hunting coat. A plastic bag will hold several and keep them clean.

Following are a few suggestions of what to do with your whitebills when you get them home on the range:

Breaded Whitebill

Disjoint or quarter whitebill. Roll in seasoned flour, dip in egg slightly beaten and mixed with 1 tbsp. water, and dredge in sifted fine bread crumbs. For variety add ¼ teaspoon sage or ½ teaspoon thyme, or marjoram to flour. Brown in fat and bake as for frying. Turn pieces carefully to keep crumb covering intact. Arrange pieces on heated platter and garnish with sprigs of parsley and broiled orange slices topped with small spoonfuls of red plum or currant jelly on each.

Southern Fried Whitebill

Roll pieces of whitebill in well seasoned flour or bread crumbs. Fry in hot deep fat (365 to 380 F.) about 10 minutes or until brown. Fry a few pieces at a time and remove them to a covered frying pan or dutch oven. Bake slowly (300 F.) for 25 to 30 minutes. For shallow fat frying, cover bottom of kettle with 1 to 2 inches of fat and proceed as for deep fat frying, turning when browned on under side. Serve with cream gravy, candied sweet potatoes, spinach, crisp relishes, southern spoon bread, and cranberry jelly.

Swiss Whitebill Steak

6 whitebill breasts
1 tsp. salt
1 cup boiling water
1/3 cup cooking fat
flour

Rub whitebill breasts with salt. Pound all flour possible into the meat. Sear in hot fat. Add water; cover, simmer slowly until meat is tender. If desired, 1 cup tomatoes may be substituted for the water, or ½ cup water may be used with the browned breast, and 1 cup sour cream added 30 minutes before the cooking is completed.

Soil conservation stamp

Uncle Sam has given an added boost to the cause of soil conservation by issuing 170 million new Soil Conservation Stamps to help focus public interest on the extensive soil conservation efforts being made by Federal and state governments, local soil conservation districts, watershed associations and other private and public groups.

The well-being of all people lies in the protection of this most basic of our natural resources. Its protection and management is vital to maintaining our waters, forests, grasslands, fish and wildlife resources upon which increasing populations must depend.

Cottontail hunter success

During the 1957-58 cottontail season, an analysis of report booklets returned (11.25 per cent) gives some interesting information on success. The 84 cooperators who reported hunts in the three-county (Albany, Columbia, Rensselaer) study area in eastern New York showed a total of 4,199 man-hours afield with a take of 1,004 rabbits.

The booklets reported on 607 hunting parties with an average size of 1.96 participants per party. The average party size without dogs was 1.55 as against 2.09 for parties with dogs. Man-hours required to bag a cottontail was 4.2 with dogs and 4.3 without—surprising as it may seem. The average number of rabbits seen by a party with dogs was 4.53, without dogs 3.06.

Fish from Delta Lake

Last Fall Delta Lake, a canal feeder reservoir in the course of the Mohawk River near Rome, was drained to permit repairs to the dam. A large part of the fish population, including a large number of pike-perch, were destined to end up below the reservoir in the Mohawk River in a section currently managed for trout. Since warm-water fish are not compatible with trout in a situation such as this, it was decided to remove as many of them as possible.

During Spring and early Summer, a salvage operation was carried out by one of the Conservation Department's fish salvage crews and large seines were employed to recover the fish from the pool and stream below Delta dam. The catch included 10,935 pike-perch weighing 6,125 pounds; 151 smallmouth bass, 117 pounds; 2,400 yellow perch, 700 pounds. The pike-perch, yellow perch and smallmouth bass were transferred to Oneida Lake. During the salvage operation nearly 34,000 pounds of carp were taken and destroyed along with about 1,000 pounds of suckers. The carp averaged about 1½ to 1¾ pounds apiece.

If repairs to the dam are completed this year, as expected, the reservoir will be filled on a permanent basis in 1960. At that time it is planned to transfer a poundage of pike-perch from Oneida Lake to Delta Lake equal to that moved in the reverse direction this year. Without a doubt, a considerable number of coarse fish will remain in the reservoir when it is finally refilled. It is a known fact that such species as carp have a far greater reproductive capacity than most game fish but it is hoped that stocking with adult pike immediately after filling will effect an early control of the carp and pan fish.

Shovelers at Wilson Hill

The shoveler is not an uncommon waterfowl visitor to New York's lake shore and river marshes but it had never come to our attention as a nester in northern New York until recently.

During July, field men were checking waterfowl production on the new Wilson Hill Game Management Area—a part of the St. Lawrence power development — and were pleased to locate 31 duck broods on the 2,000-acre area. They were surprised to find that four of these broods were shovelers with 4, 13, 11 and 9 birds, respectively. In addition, two adult pairs and four single birds were observed.

This is the highest observed shoveler production we have had in the District and may indicate that the shoveler will continue to occur on the Wilson Hill area as a breeding waterfowl species.

"Living" insecticides

Top—Healthy cabbage looper; Inset—Final stage of infection; body juices infect healthy larvae.

For years entomologists have been impressed with the speed and completeness with which an "insect disease" can wipe out an insect infestation. Nevertheless, the development of chemical insecticides had, until recently, kept abreast of harmful insect problems and limited attention was given to the research and development of natural destroyers.

Lately though, some of the worst insect pests have developed an immunity to certain insecticides, and of even more concern is the harmful, sometimes fatal, side-effects some of these chemical insecticides have on beneficial insects and on other forms of birds and animals, including humans.

Recent experiments at the Agricultural Experiment Stations at Cornell and Geneva have shown that an insect disease can be produced to effectively control the cabbage looper, an important pest of cole crops in New York, and one that has built up a resistance to DDT.

Healthy cabbage loopers were fed a specific virus which quickly caused their death. The dead insects were then ground up and mixed with water. When this solution was applied to plants the disease was quickly passed on to the healthy insects. The control was long lasting because as each insect died, its body fluids —left on the plant—served to infect all new comers. It was found that infested insects produced such vast quantities of inoculum (eight billion per insect) that two to five diseased insects could provide sufficient inoculum to treat an acre of crop.

A great advantage of this living insecticide is its selectivity to the harmful species only and, as far as is known, these insect pathogens are not harmful to warm-blooded animals, fish or birds.

Nuisance black bears

Every Summer, District Game Managers in the Adirondacks receive complaints of depredations or nuisances caused by bears. These bear vary from an occasional renegade sheep killer to the ones that explore garbage cans on back porches. The renegades usually have to be severely dealt with. The "explorers" are the troublesome ones because they scare the daylights out of Summer people who are not used to such antics or, they become so fearless at village and campsite dumps that they end up as tourist attractions. Unfortunately, some tourists are foolishly fearless too and often harass these animals for pictures not realizing they're playing with four feet of dynamite.

The Game Manager traps these animals in large trailer-type live traps and transports them from the vicinity. This is a tedious and time consuming chore and the chances are the animal has become so used to being a beggar that he will just start over again in his new home or, as has been noted from tagged animals, they make the long trip back to home base.

Experience by the District Managers and that taken from the recent black bear investigation shows that observance of a few rules could just about eliminate the problem.

1. Encourage or require vacationers and residents to keep their camps and premises free of garbage and other materials attractive to the animals.

2. Establish a garbage disposal system at village, private and public campsite dumps that would minimize the attractiveness of the dumps to bears. The use of incinerators, or the daily use of a bulldozer, to keep the garbage constantly covered is essential.

3. Remove dumpsites from the proximity of dwellings, campsites and villages and discourage tourists and vacationers from visiting dumps at night to see the bears.

This could alleviate a sizeable problem, keep the majority of the bears wild, and in the wilds where they really belong, and take a long step toward saving a life or serious personal injury to some one.

A billion dollars ahead

Since the national forests operations began in 1905, an income of more than $1 billion has been returned to the Federal treasury. The present rate of collections indicates that the second billion will be realized within the next ten years.

Last year the U. S. Forest Service was allowed $134 million for operating the 149 national forests, comprising 180 million acres in 40 states and Puerto Rico. During the same period, the agency turned over nearly $111.6 million to the U. S. treasury as "profit" from the sale and rental of national forest resources.

Many of the benefits from the national forests cannot be figured in dollars and cents either. They provide millions of man-days recreation for an outdoor-minded public. In fact, 80.2 million man-days in 1957, an increase of 234 per cent from 1946.

More than 20 million people in the semi-arid west depend on the watershed managment the national forests provide. Without it, most forms of human endeavor would be limited or rendered impossible. These incalculable benefits could represent additional billions of dollars to the Nation's welfare.

New York State's forests comprising better than 2½ million acres are making a similar contribution to the State's welfare and development.

Same axe!

The axe has been one of man's most indispensable tools from the day he made the first one from stone. It is the implement that helped carve out a great nation from a forbidding wilderness. Even with the modern wood cutting tools of today, it is still an item of equipment most often found in any rural habitation. It is an item often lost or misplaced—and replaced.

One farmer we heard of proudly claimed that his axe came across the country with his grandpappy and was still as good as new. Queried a bit further, he admitted "that it has had three new blades and five new handles, but excepting for that, she's just the same."

Lead poisoning

It is estimated that 2 to 3 per cent of the waterfowl population of North America succumbs to poisoning by eating lead shot during normal feeding activities. Probably one-fourth of all mallard ducks, because of their shallow water feeding habits, ingest some lead shot each year.

A recent study in Illinois revealed that 4 per cent of the mallards in the Mississippi flyway die in the wild from lead poisoning and another 1 per cent are sick but can fly well enough to be taken by gunners.

Beaver, otter, fisher harvest

Even though the price of raw fur has been no real incentive for trappers in late years, three of the prime fur-bearers in New York still provide a sizeable revenue for those who will go after them.

During the Fall, Winter and Spring seasons of 1958 and 1959, trappers harvested good yields of beaver, otter and fisher; fur-bearers whose pelt values are among the highest.

There was an open season or seasons for beaver in 50 counties of the State and 1,436 trappers took 6,047 beaver pelts. St. Lawrence County, the largest producer of all three of these fur-bearers, led the beaver take with 945 pelts; Franklin was next in the top three with 633 and Lewis produced a harvest of 464 beaver.

The otter harvest amounted to 215 pelts taken by 157 trappers, with St. Lawrence County leading with 37 pelts. The take from Franklin County was 34; Hamilton, 33

Fisher, the most valuable of our fur-bearers, came in for 192 pelts taken by 112 trappers. Again, St. Lawrence was out in front with 69, Franklin with 39 and 22 for Lewis.

In appreciation

An unique organization, the Albany County Special Game Protectors' Association, gathered recently to honor two of its senior members at a dinner. Shown above with their wives, they are Emerson Van Dyke, left, and Bennie Mousseau. Van Dyke has served as a special game protector for 30 years; Mousseau for 29 years. Both are charter members of the Albany County Special Game Protectors' Association, ready, on call, to assist in patrol or other law enforcement work, without pay.

We join with their fellow Association members in congratulating these men on their long and faithful service to the conservation cause. We hope, with them, that they will continue their good work for many years more.

Pulsating fish shockers

The electric fish shocker is a No. 1 tool of the fisheries manager. With this device he can take a section of stream, or even sections of ponds and lakes, and bring all of the fish to the surface, stunned but unhurt. Shockers usually operate with a continuous current of electricity passing from pole to pole through the water. This takes a lot of current and the more electrodes used, the larger the size of portable generators required.

Now, experiments are underway with pulsating current and it may be just as effective, with a considerable saving of current required to do the job. This, in turn, will mean lighter equipment. Experimenters hope, too, that a system can be developed that will be selective as to size and perhaps even to species.

One of the greatest advantages would be for the use of such equipment in hard water. At the present time the use of a steady current in the hardest water of all, sea water, with a large enough electrode system to do a good sampling job, is almost impossible.

Tribute

The medical profession, rightfully held in such high esteem the world over, took time out recently to recognize and applaud the work of fellow scientists in the field of natural resource conservation. Their much appreciated tribute appeared in the January-February, 1959 issue of *The Bulletin for Medical Research* published by the National Society for Medical Research.

Starting off with a pleasant cover, featuring reproductions of several wildlife conservation stamps issued in recent years by the Post Office Department, the *Bulletin* reviews conservation as a profession and examines opportunities in various fields of fish and wildlife research. A penetrating summary article by Durward Allen, Professor of Wildlife Management, Purdue University, sheds some good light on a number of long-standing misconceptions of conservation under the title "Conservation Biology—Facts and Fallacies."

Every conservationist heartily supports the statement of the *Bulletin's* Editor that their publication of this symposium is directed toward advancing the day "when conservation policy stems directly from the best available scientific knowledge, when sportsmen, farmers and citizens everywhere understand and appreciate the precious insight of the conservation scientist as they now are beginning to appreciate the creative genius of chemists, physicists and medical scientists."

Uranium prospector

Geologists and naturalist students find the mountains and forests in the Central Adirondacks a perfect place to pursue their hobbies. This student is looking for uranium on top of McCauley Mountain, site of the new chair lift sightseeing ride up the mountain.

Creel census at Oneida Lake

The total angler catch of pike-perch in Oneida Lake for the period May 1 to ice formation in December, 1958, was approximately 50,000 fish. This estimate was based on average monthly pike-perch catch rates per boat hour; from angler interviews conducted chiefly on the lake and from estimates of total boat hours fished. Boat counts were made from the tower at Shackelton Point and checked by 79 simultaneous 'plane-tower counts, six of which were conducted after dark. From May 1 through November 1, a total of 3,787 interviews was conducted and 269 of these occurred after dark.

The average 1958 pike-perch catch rate was .137 fish per boat hour as compared with .087 in 1957. The average catch rate for smallmouth bass was slightly higher in 1958 than in 1957 but the average catch rate of yellow perch was less than one-half that of 1957. Average species composition of the 1958 Summer catch was very similar to the 1957 composition except the pike-perch increased and yellow perch decreased about 10 per cent, respectively.

(Ed. note: The 1959 Creel Census figures for Oneida Lake, when compiled, should be eye-opening. Pike-perch and bass fishermen there have run out of adjectives this year.)

Pencils

The moving pencil writes a wonderful story—in wood. It is a story that begins in the great forests of California and Oregon and winds up as the No. 1 writing tool for millions of Americans. More than 1,500,000,000 wood-cased lead pencils are used each year in the United States, or about nine for each man, woman and child.

The wooden pencil is still the most widely-used writing instrument. Most Americans, who pursued the three R's with lead pencil scrawls as youngsters, continue to favor this traditional writing tool in all fields of adult activity. Noted authors, such as Ernest Hemingway, Theodore Dreiser, Ralph Waldo Emerson and Henry David Thoreau, preferred to write in pencil and Britain's Field Marshall Montgomery, famed "Monty" of World War II, wrote his 200,000-word memoirs entirely in pencil.

When we pick up a pencil, most of us think of it merely as lead and wood. Actually the "lead" is a mixture of graphite and a special kind of Bavarian clay, plus water. It is molded into a spaghetti-like substance under pressure and sandwiched between two pieces of wood, called slats, to give us our pencils.

It starts with the trees in the lush forests of the western California and Oregon mountain ranges. From these stands are selected the mature cinnamon-red barked incense cedar trees which account for more than 98 per cent of the wood used in pencils. The remainder of the wood comes from southern red cedar. A mature incense cedar is between 300 to 500 years in age. So, it's easy to see that trees being cut for pencils today were around long before pencils were developed in France 150 years ago. A good pencil wood has been described as "straight-grained, knot-free, capable of taking a good finish, soft enough to whittle easily, strong enough not to break in your pocket." Incense cedar meets all these tests satisfactorily.

Until incense cedar was discovered to have all these properties, however, the only acceptable pencil wood for many years was red cedar which grows in the South. Almost all pencils are made of incense cedar now, except those for the United States Senate which still insists on southern red cedar. A recent check showed that there's enough wood in an average three-foot (in diameter) incense cedar to produce about 300,000 pencils —truly a pencil tree. As these trees are brought out of the forest, timberland owners practicing expert forest management make sure there always will be more trees to replace those cut. Thus, a perpetual supply of pencil raw material is assured for the future by tree farming.

To produce the 1½ billion pencils each year, about 30 million board feet of wood are used. To further show the dependance of the pencil on the wood-using industry, it can be pointed out the 1½ million additional board feet of scrap wood made into packing boxes for the leads, 375 tons of paperboard for pencil packaging, and 500 tons of corrugated paperboard for shipping containers.

Pencil-making starts by first cutting the incense cedar logs into slats about eight inches long, three inches wide and slightly thicker than half a pencil. The next step is to dye the slats red. This is done because incense cedar is light in color and over the years people have become accustomed to the reddish pencil wood of southern red cedar. Following the combination dyeing and waxing impregnation process, the slats are kiln-dried for 15 days. They are then shipped to pencil manufacturers throughout the country whose automatic machines turn out pencils by the million. The machines cut eight parallel grooves in each slat. Lead is placed in the grooves, adhesive applied, and another grooved slat clamped on top. After drying under pressure, the eight pencils are sliced apart, shaped, sanded, lacquered and imprinted. The ferrule and eraser are then applied in one operation. It is at this point that this tree-to-pencil operation starts paying off—the final step in getting the finished product into the hands of the user.

Millions upon millions of pencils in all colors of the rainbow come shooting from the machines with great rapidity. Pencils of all sizes and shapes, 350 different kinds with black lead in 19 degrees of hardness, and pencils which do a variety of jobs, including writing on wood, cellophane, meat, human skin and hot steel.

Wood, the oldest commodity in the country, continues to play an important role in the Nation's economy by supplying the raw material for pencils, and more than 5,000 other wood products. Its role will become even greater as it keeps pace with a growing America.—AMERICAN FOREST PRODUCTS INDUSTRIES

"Universal" fishing license

Texas is the first state in the Nation to have a universal fishing license, adopted two years ago. It embraces, at a uniform fee, all those who fish in Texas, resident and non-resident alike, whether they fish on inland or coastal waters. Included among the licensed anglers are 748,000 salt-water fishermen! Many tangible dividends in fisheries research and management have been realized from the increased funds available to the Fish and Game Commission.

Deer hunters—travel

Hunters who stopped at New York's deer checking stations, in the Adirondack area were asked four questions which reveal some interesting information on how far hunters hunt—from the road.

The questions were: (1) The maximum and minimum distance hunted from the road; (2) the number of deer killed; (3) number of days hunted; and (4) number of men in the party. Those hunting from camps were placed in a separate category. Altogether 420 parties consisting of 1,512 men who hunted from the road each day were questioned and 36 parties with 157 men who hunted from camps.

The results: About 11.4 per cent of those hunting from a road base hunted ½ mile or less from the road; 32.5 per cent went one mile or less; 51.5 per cent went two miles or less; 70 per cent went three miles or less; 79.8 per cent went four miles or less and only 20.2 per cent went over four miles.

The average maximum distance road-based hunters penetrated was 3.2 miles while camp-based hunters averaged 9.3 miles from a road.

It took a successful road-based hunter or party, 5.8 hunter days to take a buck in the first half mile from the road; 9.8 days up to two miles and 12.6 days up to three miles. Between three and six miles, it took 13.3 days to take one buck deer, and from six to nine miles—15.1 days. As an average, it took 10.9 hunter days to take a buck.

The shagbark hickory

Of all the trees, large and small, that grow in the New World, one stands out as a kind of symbol of America's pioneer days. It's the shagbark hickory tree. The hard, sinewy limbs, and the shaggy bark for which this hickory tree is named, somehow bring to mind the pioneer himself—that rugged individual, dressed in fringed buckskin, who had to be strong to survive.

In Colonial times and for many years afterwards, the hickory was a symbol of strength. That's why General Andrew Jackson was given the nickname, "Old Hickory," during the War of 1812. The General impressed his soldiers by his willingness to share all their hardships without a word of complaint: Sleeping on the ground by night, tramping over rough terrain by day, and eating the same poor food as they. "He's tough," they had to admit, "tough as Hickory." And so they called him "Old Hickory," a name that stuck with Andrew Jackson even when he served in the White House as President!

Hickory wood is one of the toughest in the world, and is still the foremost wood for making handles for such striking tools as hammers, sledges and axes. It's also one of the best fuel woods, one cord of hickory giving about as much heat as a whole ton of hard coal. In Colonial days, hickory was the favorite firewood. The timber also was used to make ramrods for guns—guns that helped to win the American War of Independence! It was made into fences, boxes and farm implements. Housewives used a yellow dye, that came from the inner bark, to dye their homespun cloth.

And let's not forget the hickory nuts! "Nut cracks," held by pioneer boys and girls, were big social events, along with corn husking bees, quilting parties and "sugaring off" parties. The Indians liked hickory nuts so much, they stored them by the bushelful. One family sometimes had as many as 100 bushels on hand at one time. They made "hickory milk" from the nuts, pounding them to a mash and then boiling them in water. The liquid was described by one early North American traveler as being "sweet and rich as fresh cream" and it was used in cooking. The tangy flavor of the shagbark hickory nut is still considered an epicurean delight and the finest smoked hams are given their subtle flavor, by being smoked over green hickory wood.

Shagbark isn't the only kind of hickory tree in the State. We have quite a few bitternuts and pignuts too, but the shagbark is a favorite with most people—and with squirrels and chipmunks, too!

You'll recognize the tree by its smoky-gray bark that warps in strips, giving it a real shaggy-dog look. It's one of our more interesting trees — symbol of America's pioneer days.—ROSEMARY A. CLARKE, *Dept. of Commerce Radio Bureau*

Landlocked stripers

A new landlocked striped bass fishery has been established in the 24,000-acre Kerr Reservoir on the North Carolina-Virginia border. In 1958, two- to 9-pound stripers were taken regularly. The reservoir was stocked with fingerlings in 1953-55. The Kerr Reservoir impounds the Roanoke River and no upstream migration from the ocean is possible. The fish spawn some 40 miles upstream from the reservoir in a tributary that has a fast-running rapids section.

Invest

You don't buy glasses, you invest in good vision. You don't buy insurance, you invest in protection. You don't buy a fishing license, you invest in sport and recreation for yourself and the next generation.

Wild Grapes

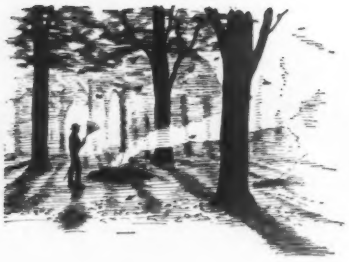
by Richard Headstrom

WHEN the apples in the orchard begin to redden and the peaches to wear the blush of mellow ripeness, the grapes on trailing vines in our neighbor's garden or along the river's edge or woodland border serve notice by their bloom of freshness that their harvest is near at hand. Gone is the day when we paid a surreptitious visit to a forbidden arbor; now we must have recourse to the nearby market if we yearn for the juicy, luscious berries. Or, perhaps we may prefer to wander about the countryside and sample the wild varieties hanging in purplish clusters from winding stems that thread their way about stone walls or among the brambles in the thicket. True, they may not be as pleasing to the taste as the cultivated grapes and yet despite a somewhat musky odor, they are not unpleasant and for jelly are perhaps unequalled.

Grapes have served as food for man since time immemorial and as a beverage too, lest we forget that wine is made from them. But in our selfish desire to satisfy our own needs, we must not be so naive to think that Nature fashioned them for our use exclusively. We must remember that our wildlife also regard them with considerable favor and find them a useful source of food. Indeed, when we investigate the subject, we find a surprisingly large number of birds that feed on them. Among the game birds of the Northeast, the ruffed grouse, ring-necked pheasant, bobwhite, quail and wild turkey find them much to their liking. Forbush, in his "Useful Birds and Their Protection," says that wild grapes are eaten by all species of birds. Whether this is strictly true, many of our songbirds do include them in their diet. Waxwings are said to be very fond of them as well as the robin, mockingbird, cardinal, catbird and the wood thrush, to name but a few.

The birds, however, are not the only claimants to wild grapes since the skunk, raccoon, opossum and black bear devour them freely and the red fox and the fox squirrel upon occasion. Doubtless there are other mammals, too, that eat them as a change from their normal diet. Even some insects—the rose chafer, the grapeberry moth, and the grape curculio—find the berries tempting morsels, as many who have grown grapes have discovered to their sorrow. These are only a few of the insect pests with which they have to contend; other species attack the leaves, stems and roots.

Apart from the fruit, the grapevine is of value to our wildlife in several other ways. The white-tailed deer browses on the stems and leaves, and in the Summer the dense foliage provides excellent escape and shelter cover as well as nesting sites for the songbirds. Many of the latter, too, use the bark in nest building. And, lastly, we might add that the greenish flowers have a fragrance that is one of the most pleasing of odors in the wildwood.



Letters to the Editor

The old pack-basket

Dear Sir: I have been a subscriber to your interesting and valued magazine for many years. Hope the enclosed "saga" is something you can use therein.

It was written on the occasion of my leaving New York State and coming to Florida to live. At that time it was necessary to sell or give away the rifles, the snowshoes, the double-bitted axe and the "ole pack-basket." I gave this to a friend of mine who still travels the "Big Woods" and at that time, feeling sorta gloomy about the whole deal, wrote the poem, to accompany the basket.

For almost 40 years, I travelled the Otter Brook, South Branch of the Moose, Big Plains, Falls Pond, Sumner Stream country in the company of such woodsmen as Gerald Kenwell, Evie Van Arnam, Phil Christy, Arch DelMarsh, et al. And the old pack-basket went with me on the hunting and fishing trips. After Scotty and Merril Phoenix started their 'plane service, we quit hiking over Fawn Lake Mountain and flew to Beaver Lake for a shorter hike to camp, but the old basket still made the trip.

Ballad Of The Ancient Pack-basket

I sing a song of long, long trails,
Of dark cold trails and wet,
Of bright glad trails, and weary trails,
Of trails I can't forget.
Of rocky trails up mountains steep,
That wind thru swamp and bog,
Of trails that thru the thicket creep,
O'er stream on fallen log.

Of trails 'cross lakes on groaning ice,
Past miles of drifted snow,
To open camps with balsam spice,
And campfires' welcome glow.
Of trails thru shadowed scented pine,
Where dim blazes scar the bark.
Of trails all bright with Autumn's sign,
Red leaves on water dark.

My song could tell of cabins' small,
Hid deep in forests green,
Of rippling streams and sparkling lakes
Alive with sunsets' sheen.
My song might tell of speckled trout,
Lurked deep in rocky brooks.
With tamarack needles on the pools,
And flies on swirling hooks.

My song could be of aching backs,
Of sweat, and heavy loads
Of creaking straps and blistered feet,
Made sore by corduroy roads.
I've heard the rifles' echoed roar,
Down lonely valleys, white and cold.
The startled buck has crashed away—
While bluejays shriek their warnings old.

The sights I've seen, the tales I've heard,
Will live in memory long
But now my bones are cracked and broke,
There's no more time for song.
My sides are sprung from heavy loads,
Of venison, bear and trout.
My straps are weak, the spring is gone,
In fact I'm most wore out.

So—treat me kindly—with respect,
My aged sinews heal—
And when at last you're old and weak—
You'll know just how I feel.

Gene Cameron,
Boca Raton, Florida

Rock Pond

Gentlemen: Last week end we explored an abandoned mine on Rock Pond about eight miles south of Chilson in Essex County. We'd like to find out more about it. It was a very interesting spot. There were a number of very substantial stone and cement foundations on the edge of the pond. These looked like the remains of an ore concentrating plant—but we weren't sure. In this area was a long metal boiler, lying on its side. It was about 6-8 feet in diameter and perhaps 25 feet long. It appeared to be oil fired.

There was a rather small pile of ore in in the area. The rock had a rust color and contained numerous flakes of mica. Some was crumbly. Nearby was a tunnel which was driven back into the hill on the northwest side of Rock Pond. The opening was 6'x6' and was cut through very solid looking rock. It was evident that some type of rock drill and probably dynamite had been used. There was also an open pit nearby where rock or ore had been removed.

Do you know any of the history of this mine or could you suggest someone that might be able to tell us more about it?

Clifford Walker, Schenectady

• *Your letter of August 17 requesting information about an abandoned mine in the Bear Pond Mountain region has been referred to us by the Conservation Department.*

The mine, which was worked for graphite, was known as the Rock Pond property. It is described in some detail on pages 60-68 in N.Y.S. Museum Bulletin 199, "The Adirondack Graphite Deposits," by Harold L. Alling, 1918. This report contains a topographic map of the area showing the location of ruins, quarries, dumps, pits, etc., and a geologic map of the region. Other information, principally of a geological nature, is included under such headings as Geology and Structure, Rock Pond Workings, Possibilities of Exploration, Milling Practice and others.

Excerpts from this bulletin are of interest. "The Rock Pond property—all that remains of this enterprise today is a big hole in the ground from which a trickle of brick-red water is flowing, giving off a strong odor of copperas (iron sulphate), and the dismal ruin of a huge mill with several acres of tailings . . .

"In 1901, Gray Brothers began to develop a deposit at Rock Pond. A well-designed ten stamp mill was erected during the following year by the Ticonderoga Graphite Company, organized for the purpose of working it. In 1903, the Ticonderoga Company allowed the Columbia Graphite Company, which had abandoned its former location near Overshot Pond, to experiment with the deposit. In the following year the Rock Pond property was formally taken over and worked during 1904 and 1905 by the Columbia Graphite Company backed by Pittsburgh capital. The next year the plant was leased to Pettinois Brothers of Bethlehem, Pennsylvania, who worked it for a brief period as the ore was cut off by a fault, it is said . . . The mill had a daily capacity of 3,000 pounds of graphite. The ore was loaded into side-dumping cars which were hauled up on inclined track into the mill. There the ore was crushed, passed under a battery of ten California stamps, treated with water and fed to the buddles, following the usual Adirondack practice. The concentrates were hauled to Ticonderoga for shipment."—Roger L. Borst, Senior Curator, Geology, N.Y.S. Museum and Science Service

Seth Green

Dear Editor: Twice I have noticed articles concerning Seth Green in THE CONSERVATIONIST. Enclosed is a photograph of Mr. Green and a letter dated 1870 concerning the shad run in the Hudson River, plus an advertisement of Mr. Green's trout hatchery.

Donald Russell, President,
Corning Fish and Game Club

Seth Green's Trout Ponds
Monroe Co., N. Y.

Rochester, June 15, 1870

Dear Sir: Yours of May 18 is received with the Journal all good. I will write you something of the salmon trout and its habits as soon as I get time. I have been from home or I should of answered sooner. I am very busy now hatching shad on the Hudson River and shall be for a month to come. I am having good success considering the number of ripe female shad I get. We must have a closed time or it is no use trying to stock the Hudson with shad. The river is so full of nets that scarcely any shad can get up to their spawning ground. I see by the report of the commissioners of fisheries in England that on some of the rivers they have a closed time of four days in each week and they now take ten times as many fish as they did when they fished every day in each week, the season through. If no fish can get to the spawning ground, the fish will soon be caught. The fisherman want the last fish and they will have him unless there is a closed day in each week.

Can you send the medal by express.

Yours,
Seth Green

Happy campers

Gentlemen: I have just returned from a two-week vacation at Rogers Rock campsite. Our family of four had a wonderful never-to-be-forgotten vacation. We cannot adequately express our thanks to a Mr. Watkins, Caretaker, and his very capable helpers. They made our vacation a most wonderful time, and are to be complimented on the wonderful way they run the campsite and how very friendly they are to everyone. They have earned our thanks for a two weeks of never-to-be-forgotten pleasure and we hope you can convey our thanks to them.

Nelson Cooper, Huntington, Long Island

• *The overwhelming number of our public campsite families have just as fine a time as did you but very few of them make any effort to let us know about it unless, of course, they find something that is not to their liking; then they let us know pronto. But we are all human, even those of us who are in this conservation business, one place or another and, like the rest of the tribe, we really appreciate knowing that our efforts to serve the public do not go unrecognized.—Editor*

"A Careless Fool"

Dear Sir: I am in the sixth grade at Penfield Central School. In English we wrote a poem about Nature. Here is mine:

Smokey the Bear

Once there was a little bear
And Smokey was his name
He cautioned folks to take great care
And put out every flame.

The forest rangers have him show
Adults and children too
About those things that they should know
And things that they should do.

You'll see his posters everywhere
So please obey the rule
I hope nobody wants to dare
To be a careless fool.

Harriet Thompson, Penfield

• *We hope not, too.—Editor*

Transporting deer

Dear Editor: Could you please advise me about the transportation of the carcass of a deer on the outside of an automobile on the parkways and highways of New York State.

Is this permitted on the State highways and county roads, or is it controlled by each local police authority?

The correct information on this will be appreciated by many hunters.

Martin J. O'Connor,
Franklin Square, L.I.

• *To the best of my knowledge there are no laws or ordinances against transporting the carcass of a deer on the outside of an automobile unless they are specific local ones.*

In fact, it is recommended that a deer carcass be transported on the outside of an automobile to make sure that good air circulation will prevent spoilage. A carcass shouldn't be transported over the hood of a car because the heat of the motor will increase the possibility of spoilage.

Because new cars have such spacious trunks, most deer are transported in them. This is all right if one makes sure that the trunk is propped open so that good air circulation is possible.

Some states require that deer be transported on the outside of an automobile for law enforcement purposes. New York State does not have such a law.—Earl A. Westervelt

Giant puffball!

Dear Editor: You cur! In your picture of me in the August-September issue holding a big puffball, you lopped two inches from my height. This could be forgiven, but for the fact you added 23 pounds to my honest 247 after a Summer of rigorous dieting on barbecued hamburgs, sweet corn and all the other good things.

Our friendship is being strained.

Bryan ("Puffball") Burgin

Mistaken identity

Gentlemen: I'm an ardent reader of your magazine but I never read a story like the one "Giant Puffball." How can a man lift a puffball weighing 270 pounds with such ease and kneeling at that. Tell me another if you please.

Mrs. K. Reinhold, Middletown

• *No! No! The man, not the puffball -- Editor*

One less

Dear Editor: Inclosed you will find a photograph of myself holding a coyote which I shot, Sunday, March 15, 1959 in Montgomery County near the Town of Glen.

He weighed approximately 35 or 40 pounds.

We heard there were two of these coyotes seen in the vicinity and a local game club had a couple of hunts with no success.

My father-in-law and I, out for our usual fox hunt, saw them crossing a field a few thousand yards away. After doing a little figuring on wind direction, and after three hours of tracking, I shot and killed the male coyote pictured.

William H. Weeper, Fonda

The "big tree"

Dear Editor: A few days ago a friend and myself were talking about the great sequoia tree of California. We were wondering if it is possible to grow this great tree in New York State. We both live here on Long Island but we also have land upstate. We would like to find out if it is possible and to whom do we write or send to get two of these trees. Would we have to plant a male and female or will one tree grow fast alone? Thank you.

Joseph Bafaro, Hicksville, L. I.

• *The so-called "great" sequoia tree, also referred to as "big tree" and "Sierra redwood" as distinguished from the coast redwood of California, has been grown with some degree of success in New York. Surviving specimens can be found on Long Island; the one upstate at Aurora, New York, having apparently been killed by the low temperatures of the 1933-34 Winter. Whether the Long Island specimens survived the past Winter, which was very hard on evergreens throughout this whole area, is somewhat problematical and might be interesting to find out.*

In November, 1956, I received a note from George H. Peters, referred to in one of THE CONSERVATIONIST'S *pages in which he stated "Just got the last issue of* THE CONSERVATIONIST *and hasten to add my bit to the 'big tree' situation! The so-called sequoias along Northern Blvd. in Flushing as reported by 'City Slicker' are* Taxodium distichum!" *Taxodium distichum, I may say is the botanical name of the Southern baldcyprus, a close relative of the California redwood which curiously enough seems to be thoroughly hardy here in the Northeastern States.—E. W. Littlefield, Asst. Director, Lands and Forests*

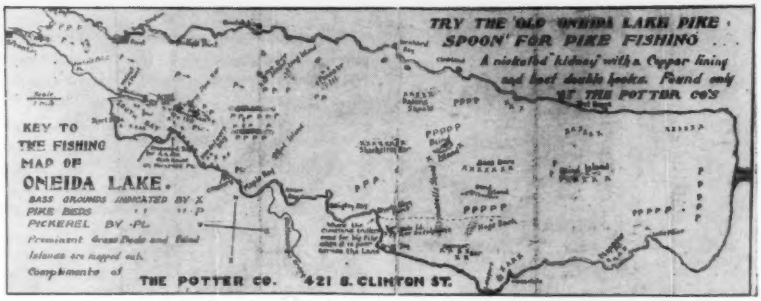
Eagle Nest Pond

Gentlemen: On page 37 of the April-May issue of THE CONSERVATIONIST there is a list of New York ponds stocked by airplane. Among the ponds is listed Eagle Nest Pond in Hamilton County. Although I have been a resident of Eagle Nest, which is the name of our place located on Eagle Lake, for over fifty years, I have never heard of an Eagle Nest Pond anywhere in this vicinity. Can you enlighten me as to its location?

Walter Hochschild, New York

• *It is not surprising that you may have never heard of Eagle Nest Pond for I believe until recently its name was not particularly widespread. The old U.S.G.S. maps showed the lake but gave it no name. The newer 15 minute series U.S.G.S. map (Raquette Lake Quadrangle) lists its name as Eagles Nest Lake. The lake or pond in question is located adjacent to Bug Lake and flows into Seventh Lake of the Fulton Chain.*

Unfortunately Eagle Nest Pond and Eagles Nest Lake will be a source of confusion in the future. To avoid Departmental problems caused by nomencla.ure, or a lack of it, all lakes and ponds are numbered.—Robert G. Zilliox, District Fisheries Manager, Adirondack Fisheries District


TRY THE OLD ONEIDA LAKE PIKE SPOON FOR PIKE FISHING
A nickelled kidney with a Copper lining and hoof double hooks. Found only AT THE POTTER CO'S
KEY TO THE FISHING MAP OF
ONEIDA LAKE.
BASS GROUNDS INDICATED BY X
PIKE BEDS
PICKEREL BY PL
Prominent Grass Beds and Island are mapped out.
Compliments of
THE POTTER CO. 421 S. CLINTON ST.

Oneidy Lake

Dear Editor: I bin a reeder of your magzine fur a number of years and I red with sum grate interest your stuff and maps on Oneidy Lake etcetra. Don't know bout the other lakes and Saint Lawrence but I ain't lernt a thing offen the Oneidy maps bout bass. I went to diggan out my ole map of whear I usta fish Oneidy in the ole days to see if thim collidge fellers knowed what they was doin. Am senden it to you and I want it back too.

Mebbe you'll want to show thim collidge fellers that us ole folk dint need collidges to find out whear the fish war on Oneidy. If thim fellers study the map, they'll find whear the walleyes are too. Might save em a passal of money and time they could spend to better use, like fishing fur instantce.

I'm over eighty now and I still kin ketch a gud mess every time I fish Oneidy. This ole map was maid about 1915. Mebbe one of your reeders—the ole live ones—might reckolect closer.

Simon Tinkleboon, Punkin Holler

Winter woods

Dear Sir: For more than 40 years I have been an Adirondack guide and woodsman and now I find myself a conservationist by virtue of a Christmas gift. I have read several numbers of your magazine with much interest and was on the verge of subscribing.

Being a poet, of a sort, I thought possibly I could give many of your readers a few moments of pleasure by contributing a few seasonal outdoor verses in case you care to give it a trial run and see how many brickbats it attracts.

E. Dan Partello, Rome

Trees in winter

The brooding night enfolds each somber hill
That rears abruptly from the stream below,
The trees stand darkly desolate and still
Amid a bleak expanse of deepening snow.

A hazy moon peeks through a scudding cloud
And lays weird shadows on a half-filled trail,
'Neath grotesque hoods the evergreens are bowed,
With hollow moaning presaging a gale.

The tempest breaks upon a rugged peak
As lowering clouds blot out the eerie light,
The moaning rises to a crazy shriek
And tossing branches fade in swirls of white.

How pitiless the lash of biting cold
And long the hours until the storm is gone,
How great a story without words is told
By trees, alone unchanged, that wait the dawn.

What is their purpose in the scheme of things—
To point forlornly to an empty sky,
To shield a forest creature's wanderings
Or watch a lonely sunset flare and die?
Sometimes at night a far sound echoes clear
As if a distant tree communes with these;
Then, every snow-decked form reposing here
Makes manifest unfathomed mysteries.

Trees intimately live with night and day
With starlit dome or far horizon's call,
With sun and storm as seasons pass away
And leave the world to wonder at it all.

The law of nature will not be denied;
When it is time to wake each living thing
The trees will lay their ermine wraps aside
And wear again the emerald cape of spring.

E. Dan Partello

• *Well, we like it.—Editor*

Towpaths

Dear Sir: In your December-January issue of THE CONSERVATIONIST, one of your artists has done a picture of the Erie Canal with what seems to be a towpath on both sides of the canal. Is this an error or were there places where such was the case? It was my understanding that only one side was the towpath, the other the berm.

THE CONSERVATIONIST comes to our school through the generosity of the Federation of Conservation Clubs of Cayuga County. We are indeed grateful to them for we enjoy and use this magazine in our classes.

Fannie Evans, Ethel Stickle,
Teachers, Port Byron

• *In preparation for my painting of the canal picture, several days were spent in the N.Y.S. Library here in Albany going through the original plans for the canal, programs issued at the opening, sketches and photographs of the boats, chairs, clothing, etc. of that time. According to the information that I could dig out, there were several places along the canal that had towpaths on both sides.—H. Wayne Trimm*

Oneida Lake pancakes

Dear Editor: Can you give me (or tell me where I can get) information about "The Pancake Shoals" in Oneida Lake? I fished up several specimens a few days ago and would like to know the composition and history of same.

Stanley L. Morris, Vernon

• *The Editor of* THE CONSERVATIONIST *has forwarded me a copy of his letter of August 28 to you concerning the story behind the "pancakes" of Oneida Lake.*

I regret to say that I don't have the information that you wish but I will now again renew my efforts to obtain it. Three or four years ago when I first obtained one of these "pancakes," I took it up to the Geology Department at Syracuse University and one of the professors there indicated an interest in finding out more about these formations. I was interested at that time in having him write an article for our magazine but he said that before doing this he would like a considerable number of these formations so that they could be fully studied.

Personnel from this office have tried several times with a mechanical dredge to obtain them but without success. Since the "pancakes" seem to be more susceptible to harvesting by fish hooks, we will try this method of attack. As soon as we obtain some definite information we will be glad to pass it along to you.—A. C. Petty, District Fisheries Manager

(Ed. note: Sounds like a great opportunity for skin-divers.)

Christmas ferns

Dear Sir: In the last CONSERVATIONIST I was very much interested in Mr. Cook's article on "Fern Picking."

At our flower show by the Tri-County Farm and Garden Day, two arrangements were thrown out because Christmas ferns were used in the arrangements. It is my opinion that there is just one fern (rather rare) that is on the conservation list that cannot be picked.

Am I right that a person may pick or allow others to pick flowers which are on the conservation list if they are on his property? The conservation list applies to State-owned land—does it not? I would be very interested and I know others would be if you would list the flowers and ferns not to be picked.

Mrs. Wilbur McDougall, Smith's Basin

• *You are correct that there is only one fern—the hart's tongue—which is specifically protected, and that because of its rare and local occurrence.*

Also you are correct that a person may do pretty much as he pleases with the plants that grow on land which he owns, whether they are wild or cultivated. By the same token, an outsider has no right to pick and remove any plant from the lands of another without the owner's permission. As you indicate, the list of plants in the law applies to removing plants from State-owned land, not private land.

My opinion is that the judges were in error in disqualifying exhibits because they contained Christmas ferns. This is a common species of wide distribution and certainly not in danger of extinction. It is often dug up and used as a pot plant.

I think that Mr. Littlefield's story in THE CONSERVATIONIST *some years ago, "To Pick—or Not to Pick," covers the situation admirably. Reprints of his article are available upon request to the Conservation Department, Division of Conservation Education.—David B. Cook, Supervising Forester*

Terrill Pond

Dear Sir: I was very sorry to read the letter by Jonathan Pearson in the June-July CONSERVATIONIST concerning Terrill Pond. For about two years ago I was a member of an Explorer Post from Fayetteville that camped at Terrill. At that time we were struck by the beauty of the area and the neatness of most of it. We found the cabin on the sandy beach side to be very clean and even stocked with a little canned food. The lean-to at the outlet was not so ship-shape as there were many bottles and cans littered about. Not influenced by this, we made camp there and then spent the next three hours burying cans and bottles. After the camp had been made spotless, we had a great time and when we were about to leave, two days later, we piled fire wood at the side of the lean-to for future campers. We also carved our names on a large fungus, not on the wall, and left it in the lean-to in hopes that we could return and add our names once again.

Unfortunately, we never did return and even more unfortunately, the campers that preceeded us were not as camp-conscious as we were. I have always thought that if some one asked me to recommend a camping area in the Adirondacks, I would refer them to Terrill Pond. Now I am afraid I would hesitate to recommend Terrill Pond to any one.

I heartily agree with Mr. Pearson that full-scale attack should be made on these ignorant and selfish (pardon the expression) campers.

Robert Plumb, Fayetteville

Grafting vs cutting

Dear Sir: In reference to an article in the recent June-July edition of THE CONSERVATIONIST called "Forest Tree Improvement in New York," I noticed you started some of the young trees from cuttings. Are they set in sand or earth, and what food, if any, is used in the propagation bed? In our back yard, we have five very large pine trees that were set there about 95 years ago. I want to take some cuttings from these and try to propagate them. I have been very interested in general horticulture for the last few years.

John Hawkins, Holcomb

• *If I understand you right, you want to propagate 95-year-old pine trees growing in your back yard vegetatively. This can be done by different means; i.e., by grafting and cutting. To root cuttings of old trees is, however, very difficult, and I would suggest you graft scions of these trees onto young two- or three-year-old root stocks. The grafting can be done best in the early Spring when the scions are still dormant. The root stock, however, should have broken dormancy. Since I assume that your trees are white pines, you should try to get young white pine root stocks. If you want to get detailed information on how to graft, I would propose that you come to Syracuse where we can show the whole grafting procedure in detail. Rooting of young trees in rooting beds can be done quite successfully, but the older the trees become the more difficult it is. Very old trees in most cases do not root at all.*

If you should be interested in our assistance please let us know.—F. U. Klaehn, Assistant Professor of Silviculture, College of Forestry, Syracuse

New antlers for old

Dear Sirs: I have a beautiful set of deer antlers that are perhaps close to 20 years old. They seem to have been weathered and lost their luster. One point appears to be partly eaten into.

Would it be possible to restore some of their luster? Any way of "repairing" the damaged point?

Thanks for your help.

Harry Boylan, Canaseraga

• *Taxidermists have a way of restoring deer antlers which bring them pretty close to their original form. If you want a professional job, I would suggest that you turn them over to a taxidermist.*

If you want to do the job yourself, the following may be helpful: About the only way to repair a damaged antler is to fill or build the missing parts with plaster of Paris or some of the new plastics. Plaster of Paris will do a pretty fair job and can be sanded down smooth and to the original form. It can then be shellacked to fill the pores and then carefully painted with oil paints to approximate the color of the rest of the antler. There are also colored waxes that taxidermists use for this type of repair. If it is a complete point that is missing, sometimes another point of similar size can be secured from another set and this point doweled into the broken base.

As for the rest of the antlers—rubbing with linseed oil will usually bring back their luster and give the yellowish or brownish color that is normal with a living specimen. —Earl A. Westervelt

---

Credits

First cover, pages 17, 19, 20, 21, 24, 25, 27, 43, H. Wayne Trimm; second cover, Hy S. Watson; 2, Division of Parks; 3, 8, 9, 31, Roy Irving; 5, Reynold Doerer, Earl McGuirk; 10, 11, LeRoy C. Stegeman; 12, 14, 15, New Jersey Division of Fish and Game; 16, Wm. Wessels; 28, 37, Nick Drahos; 32, Louis A. Fuertes, courtesy N. Y. S. Museum; 35, McGuirk; 36, Paul E. O. Stricker; 38, Atomic Energy Commission. Cornell University; 39, U. S. P. O. Dept.; 40, Cornell U.; 41, McGuirk, Central Adirondack Asso.; third cover, Clayt Seagears; fourth cover, H. Lou Gibson.

A Bit About a Bat

SOME people do not attain a pleasant visual reaction when they gaze upon a mouse. Perhaps it's the naked tail which even mouse lovers admit is never particularly attractive. Or perhaps the human brain associates the mouse with things unclean. This mental prejudice may give such artificial distortion to the image that the mouse becomes a nasty thing—justifiably or not.

Give the mouse a grotesque pug nose, make its eyes even beadier, add a pair of naked, leathery wings with hooks, stir with fairy-tale associations of evil and the average person comes up with something *really* repulsive—the bat.

Years ago we kept several kinds of live bats in laboratory cages to observe and to draw. We found them fascinating but never pretty, cat-clean in their personal habits and surprisingly agile despite weak knees, which bend the wrong way for walking, and only one clawed finger (the thumb) which is not completely encumbered by the membrane of the wing. But we never had any desire to bat the breeze with a bat—until the day when one just seemed to take shape in front of us under unusual circumstances (*see picture*).

Apparently we had stumbled into this bat's boudoir.

Hanging by one foot from a special perch was this curious critter. Hanging on the walls was an odd collection of posters —all batty.

We could see at once that the ears of the animal were perfectly huge. But because it was hanging upside down, we found it strangely impossible to make an appraising inspection of its face. We were not upset long by this turn of affairs for, by a great stroke of luck, we happened to be carrying a mirror designed for possible service as a means of heliograph communication with some responsive pronghorn antelope.

Whipping out this mirror, we manipulated it into the position necessary to attain an adequate visual reversal of form. Thus we were able to verify our first impression that the creature actually was wearing a collar and tie! Apparently our gaze was of such obvious astonishment that he smiled and began to speak.

"Cain't y'all see, honey?" he said. "It's a bat-wing tie. What else?"

We were not at all surprised to hear the southern accent. Already we had concluded that our friend was a Big-eared Bat, a variety which, east of the Mississippi, does not normally occur north of Tennessee and the Carolinas.

Our friend went on to explain that he had just blown in with his mobile home to discuss the very latest in fathometer equipment with an old buddy from Brooklyn. It seems as how they planned to explore the possibility of canning aquatic insects as a new source of high-protein bat food. Normal supplies might be depleted seriously or even wiped out, he said, by what he termed the sometimes heedless haste by humans to destroy *all* insects, good and bad, by wholesale indiscriminate spraying in order to control a few.

"Ah'd love to face squarely some of y'all humans with this problem about bugs," the bat said, "but every time ah turn around to hang by mah thumbs, ah get a rush of blood to mah feet."

"Anyway," he added, "we bats nevah, *nevah* want to get in y'all's hayuh so let's change the subject."

We asked about the fathometer.

"Oh, that should be obvious," he said. "We bats, ya know, have had ratheh extensive experience with what ah b'lieve y'all call sonar echoe devices and radar. Since fathometers or depth findahs operate on much the same principle we should have no trouble eitheh with operation oah maintenance problems."

The bat extended its arms, spread its long fingers like the ribs of an umbrella and dropped from the perch, momentarily flapping softly in front of us.

"Excuse me a couple of minutes," he squeaked, "ah have a pet two-toed sloth tied out in bayuk and ah gotta feed it."

We were amused at the curious affinity between the active bat and its sluggish pet —strange bat-fellows in their own topsy-turvy world.

The bat's rather modest reference to his experience with sonar was a major understatement as we shall see.

The eyesight of bats, in general, is believed to be comparatively poor by day and much worse by night when most of them fly and feed. This deficiency is no handicap to the bat which, even when blindfolded, is able to avoid all sorts of obstacles—even thin wires—as if they were neon-lighted. Obviously some strange adaptation is involved. Research thus far suggests a kind of highly specialized sonar system which is believed to work like this:

When bats fly, they sound off with a continuous stream of ultrasonic notes pitched far too high for human ears to record. The sound may be up around a frequency of 60,000 or so vibrations per second and it seems to be emitted in a series of notes so fast that up to 50 or more are uttered each second.

When the sound waves from this ultrasonic voice strike an object, they rebound as echoes. The bat's "ear" registers these rebounding sound waves so remarkably that the echoed objects can be avoided in fast flight. Bats, unable to see at all, have no difficulty dodging through a maze of branches or even a labyrinth of wires especially placed to create unusual difficulty.

There seems to be no well-accepted theory concerning how a bat, while bombarded wholesale with echoes from trees, twigs and telephone wires, is still able to pick enough tiny bugs out of thin air to load its stomach in a quarter-hour. Yet some varieties may do this two or three times a night when pickings are good.

A couple of extra-curricular appendages on certain of the world's 2,000 kinds of bats still baffle science and probably have something to do with the beast's sound system, its range finder, air pressure gauge or other secret device. One is the fleshy appendage which juts upward like an inverted pennant from the muzzle of the so-called leaf-nosed bats. The other, known as the tragus, in general appears like an upthrust dagger with the hilt buried in the bat's ear.

Our friend, the Big-eared Bat, wears a real fine tragus. We figured to question him about its function when he reappeared which he did almost immediately. But he began to talk without giving us a chance.

"About that bug spray business," he said, "ah sholy didn't mean to imply that y'all in the New Yawk Conservation Department do youah spraying on a willy-nilly basis. Ah happen to know that youah Forest Insect Pest Control people bend way ovah backward to make certain that youah spraying — especially with the 'planes y'all have—is done on a basis of pin-point mapping, propah spray mixtures and sound research."

Thanking Brother Bat for adding this thoughtful bit of factual propaganda, we reopened the subject of submarine exploration. The question was how a creature so ill-adapted to perform even a mediocre breast stroke—let alone fool around with a Scuba — could possibly operate on or under water.

But our hero didn't even bat an eye.

"Simply elemental, honey," he said, "bateau for the surface; bat-hysphere underneath."

—CLAYT SEAGEARS

ENVELOPE CAN BE REMOVED HERE

"Cain't y'all see, honey?" he said. "It's a bat-wing tie. What else?"

Kodak flexichrome print

Semi-tame bird in Rochester zoo

WOODDUCK, *Aix sponsa*

H. Lou Gibson